SAGUARO LAND BULLETIN

DESERT BOTANICAL GARDEN of ARIZONA

Vol. XXVIII January, 1974 No. 1

REG MANNING

SAGUAROLAND BULLETIN

Published and owned by the Arizona Cactus and Native Flora Society, sponsors of the Desert Botanical Garden of Arizona, P.O. Box 5415, Phoenix 85010. Saguaroland Bulletin attempts to promote the Garden and to provide information on the desert plants and their culture. Subscription $5.00 per year, the subscription including active membership in the Society and the Desert Botanical Garden. Issued 10 times a year.

W. HUBERT EARLE, Editor
LILLIAN DIVEN, Associate Editor

Vol. XXVIII | January, 1974 | No. 1

Arizona Cactus and Native Flora Society

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Table of Contents

Editor's Notes 3
Arizona Cactus, *Mammillaria tetrancistra* 5
Aspects of the Desert 6
Mexican Cactus, *Lophocereus schottii var. australis* 7
Desert Shrub, *Cordia boissieri* 9
Garden Activities 12

Cover: Quiver tree—*Aloe dichotoma*
Grown from seed at the Garden, now planted in Patio

Desert Botanical Garden of Arizona

STAFF

Director .....W. H. Earle
Research Botanist .....Dr. Howard S. Gentry
Horticulturist .....Rodney G. Engard
Curator of Herbarium .....J. Harry Lehr
Secretary .....Ann McGill
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Student Horticulturists .....Lyle A. McGill, Robert M. Kirk

Garden Open Daily 9 A.M. - 5 P.M. Including Holidays

Editor's Notes

Your Editor made several trips to the west coast for meetings, addressed many groups throughout the year, studied nature centers in the eastern states in June, and has been generally busy.

Our regular volunteers Peg Gill, Elizabeth Fritz, Barbara Worbington, Margaret Jenkins, Mildred Hunt, Dorothy Reiff and Lillian Diven are here each week and we can count on their dependable work. About forty additional volunteers help us to make our annual Cactus Show the success it is.

For many years we have given study to the future establishment of a nature center here at the Garden, as experience has convinced us that there is a definite need. On the north side of our present parking lot is a three-acre tract on which could be located a Nature and Environmental Center containing orientation rooms and office, plus about a mile and a half of nature trails planted with Arizona natives. The Center would be used by elementary, high school and college students, and members of the public interested in the economical and horticultural use of desert plants. An Educational Supervisor would be in charge.

At our board Meeting in early November the members approved approaching the Arizona Bicentennial Commission for assistance with this plan. Your Editor made a presentation to the Commission on November 29th, and our plan was approved and endorsed as an official activity of the Commission.

Official endorsement means present and future assistance from the Commission. Present assistance includes directing us toward sources of grants and funds who have indicated interest in aiding only officially endorsed plans. These sources may or may not require matching funds, but whatever the developments, our sponsorship by the commission will increase our chances of success considerably. Future assistance will take the form of a grant of money from the Commission itself. It is of course too early to estimate the amount, but the assistance of the Commission will help make the Nature Center a reality, and things look favorable. We will keep you informed on our progress.

Some of the money involved will have to come from our Building Fund. Would you think of contributing to it, too? Several years ago, while driving along the Charles River in Boston, I saw a funeral procession slowly travelling toward the cemetery, and bringing up the rear was a Brink's Armored Car! Of course it was just a coincidence, but it looked as if the deceased were really trying to "taking it with him!"

You can do much more good if you give to some worthy non-profit institution. May I suggest the Desert Botanical Garden? We are a non-tax-supported institution with research and interpretive programs and a worldwide reputation. Consult your lawyer or any of our Board Members about a donation or an endowment.

(Continued on Page 4)

EDITOR'S NOTES—

(Continued from Page 3)

It is interesting and gratifying to us to look back at 1973 and see how the Desert Botanical Garden has successfully met the changes and problems of the past year. Perhaps a summary of last year's activities will be of interest to you, too.

Some of our personnel is new and others have been promoted. Rodney Engard is our new chief horticulturist. Lyle McGill, previously part-time when he was an undergraduate, is now a permanent member of the staff. Bob Kirk is a new student horticulturist. Ann McGill (no relation to Lyle) is our new secretary. We've certainly grown from the three-man staff of twenty years ago.

Dr. Gentry has made field trips to Mexico and has spent several weeks in California herbaria working on Agaves for the NSF Research Grant.

Harry Lehr has increased our herbarium sheets by thirty percent, and ten new large herbarium cases have been added.

The Library has added many new books and librarian Peg Gill has acquired binders for magazines and has sent several hundred botanical periodicals and a number of books to Santa Barbara for permanent binding.

A publications storage building was built in the fall by Don Shelstad for books that we wholesale and retail.

New shelving and cupboards have been installed in the office to help our secretary Ann McGill.

Many new items have been added to the books and gifts for sale at our Visitors' Center where Ann Shelstad and her volunteers are yearly increasing our sales. Revenue from these sales is a great boost to our financial strength.

Rodney Engard had been setting out many new plants with his assistants Lyle and Bob, who recently completed over one hundred feet of stone walls northeast of the Webster Auditorium. One of the biggest jobs the staff had for many months was removing the heavy growth of weeds caused by the heavy rains last winter and spring. Just to be contrary, the weather did a double flip and then gave us the driest summer and fall on record, with 125 days of no rain at all. This caused such a drought that the cottontails and jackrabbits from all nearby desert areas descended on our succulent plants for moisture and food. We had to drop all other work for weeks to install wire netting around the saguaros, barrel, cacti, etc., to protect them from the hungry rodents.

Lynn Trainum, who takes care of the visitors' Center two days a week, has been busy getting out brochures to motels and hotels, buying and bringing merchandise from our Tucson suppliers, and being handy on dozens of jobs around the Garden.

The classes in FLOWER PRESERVATION will begin at the end of March, but it is none too soon to register for these very popular limited-enrollment classes. A deposit of $10.00 is required to reserve your place. For further information telephone the Garden at 947-2800.

REMEMBER!

27th

Annual Cactus Show

February 17-24

Wishing You a

Happy New Year!

CORKY-SEED PINCUSHION
Mammillaria tetrancistra

Cactaceae

To the average cactus collector this solitary **Mammillaria tetrancistra** can easily be confused with **Mammillaria microcarpa** (fish-hook pincushion). They resemble each other closely, but one way to tell them apart, if you have the nerve to take the hook-spined plant in your hand, is to give it a squeeze. **M. microcarpa** is very rigid, while the body of **M. tetrancistra** is soft and can be bent.

The eastern range of **M. tetrancistra** extends into Yavapai and Maricopa counties, which is the western limit of **M. microcarpa**, so there is very little overlapping of the species in the field.

A definite identifying characteristic of **M. tetrancistra** is the corky base of the seed—but first you will have to find a plant which is in fruit.

M. tetrancistra (meaning "four (central) spines") received its name from Dr. G. Engelmann in 1852. In 1856 he renamed it **M. phellosperma** (meaning "cork-seed"). It has had eight different names but now has returned to its original name.

The plant is four to eight inches tall, solitary but occasionally cespitose, and about two to two and a half inches in diameter. The dense covering of spines obscures the plant's soft body. There are one to four central spines, one-half to one inch long, that are red to black and quite sharply hooked. The thirty to forty radial spines are white and bristlelike, three-eights of an inch long, and intergrade with the spreading central spines.

Single central spined *M. tetrancistra* four and half inches tall.

Flowers are one to one and a half inches in diameter, pink to lavender, with white margins on the oblanceolate petals. The fruit is smooth, red, cylindroid to club-shaped, and three-quarters to one and three-quarters inch long. It tends to be dry and has dull black seeds, each having the white to brown corky tissue of the aril as large as the seed. This is indeed a peculiarity and is not found in many other species of cacti.

The plants are found in sandy soils of hills, plains and valleys of the desert from 400 ft. to 2400 ft. elevations. They grow in Yuma, Mohave, Maricopa, Yavapai and Pinal counties of Arizona across the southern California deserts, southern Nevada and southern Utah.

Type Locality: San Felipe, California.

Distribution: Western and southwestern Arizona, southern parts of California, Nevada and Utah.

REFERENCES

Benson, Cacti of Arizona
Earle, Cacti of the Southwest

—WHE

ASPECTS OF THE DESERT

Winter sunsets in the desert are spectacular. Whether the reason is the presence of dust particles in the air, the angle of the earth, or the degree of humidity, we haven't been able to ascertain, but the flaming winter skies here have an intensity and brilliance unmatched anywhere else.

Mexican Cactus

CRESTED CEREUS
Lophocereus schottii var. australis

Cactaceae

When you travel from Ajo, Arizona south through Caborca to Santa Ana, Sonora you see large stands of **Lophocereus schottii**; the cactus known as "Senita." Then as you progress from Guaymas south to Los Mochis you see plants that resemble **L. schottii** but are smaller and lower-growing and are **L. schottii** var. **tenuis**. But there is different distribution in Baja California. When you drive the new road south on the peninsula you see **L. schottii** beginning near Rosario and continuing all the way southward 600 miles to La Paz. The plant extends the length of the peninsula. But drive to and around the tip of Cabo San Lucas and you will see a tall thin-stemmed version called L. **schottii** var **australis**. (**australis** means southerly.)

The genus **Lophocereus** was created by Britton and Rose in 1909 for those plants having bristly-topped stems. The common name, Crested Cerus, is simply a translation of **Lophocereus**. Botanists have set up a number of different species over the years, and in 1963 Dr. George Lindsay, California Academy of Science, published a revision of the genus in Cactus and Succulent Journal vol. XXXV, No. 6. This has helped settle many questions on the difference in the plants that change so readily with terrain and climate.

L. schottii var **australis** is usually a single-trunk plant, rather treelike, with a trunk about twenty inches thick. The branches are yellow-green, three to four inches thick and fifteen to twenty feet long, with six to nine acute, smooth ribs on each. Spines are on the upper portion of the stems, and are one to three inches long,

Typical thin 12' tall flowering stem of *L. schottii var. australis.*

gray, flexuous or bristlelike, and number twenty to forty to an areole. The flowers are funnelform, one to three to an areole, 1¾ inches long and 1½ inches wide, from white to deep pink, and nocturnal. Fruit is red, globular to oblong, edible, smooth, one-half to one inch thick, with red pulp and black shiny seeds.

This variety, like the other Lophocerei, can be propagated quite easily from stem cuttings. Some of the branches have adventitious roots that will help the cutting root quickly with very little watering.

The plant illustrating this article has grown from a cutting brought to the Garden in 1937 from Baja California by W. T. Marshall, Director of the Garden from 1946 to 1957.

Type locality: not given.

Distribution: southern portion of Baja California del Sur, Mexico.

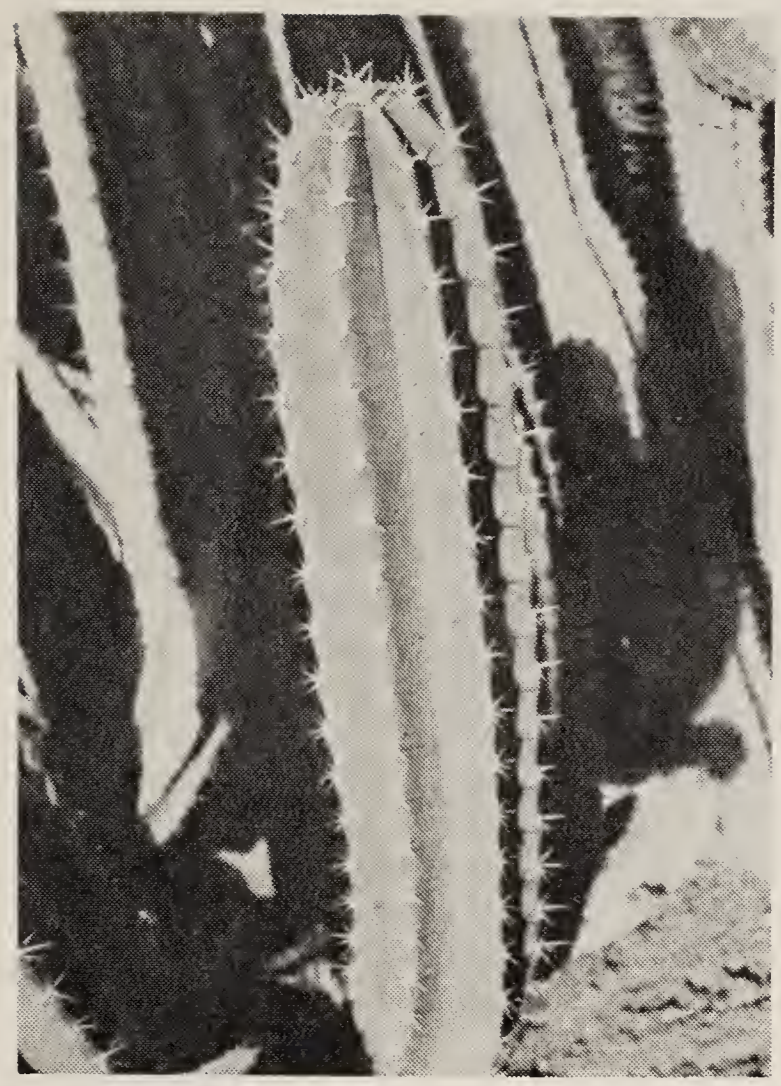
REFERENCES

Britton & Rose, Cactaceae
Lindsay, C&S Journal, Vol. XXXV, No. 6.

—WHE

Ten foot tall *L. schottii var. australis* started from a cutting in 1937. Compare this variety with the species shown below.

L. schottii twelve feet high from a large branched cutting collected at Caborca, Sonora in 1947.



A three inch thick stem, thirteen inches tall *of L. schottii var. australis.* Compare it with adjacent species.

Four and one half inch thick stem of *L. schottii* twelve inches tall.

Desert Trees and Shrubs

DESERT SHRUB
Cordia boissieri A. DC.
Trompillo
Boraginaceae

Also known in Mexico as "anacahuitl," **Cordia boissieri** A. DC. is a member of a genus having 250 species distributed in the tropical and subtropical regions of the world. Taxa of the genus are cultivated in the Middle East and tropical Africa as well as the new world as food and ornamental plants. Two species are lumbered in the West Indies.

C. boissieri most often occurs as a medium-sized shrub, but has been recorded to grow to 8 m (25 ft.) with a trunk diameter of 20 cm (8 in.) The trunk is covered with a thick, ridged, gray bark. The wood is soft, close-grained and brown. It is little used, only occasionally shaped into yokes and other articles in Mexico. In 1860, the wood was exported in some quantity from the port of Tampico to Germany. There it was used in the treatment of tuberculosis. However, analysis showed it to have no medicinal properties. All parts of the plant are aromatic and this may have influenced its use as a medicinal plant. A large specimen may be seen at the Boyce-Thompson Arboretum at Superior. A field trip scheduled for February will enable those attending to see this exceptionally handsome example.

A four foot high and six foot wide shrub of *Cordia boissieri* growing in our Garden that was started from seed collected six years ago.

The Mexican name "trompillo," meaning "little trumpet," refers to the white funnelform flowers with yellow throats which fade brown with age. They are borne at intervals throughout the year in terminal cymes of 6 to 10 flowers. The regular (radially symmetrical) corolla is made up of five fused petals (sympetalous) about 2.5 to 5 cm long. The corolla limb (free ends of the fused petals) is crispate (curled). Externally the corolla is downy. Adnate (fused) to the corolla throat are the five stamens, alternate in position to the limbs of the corolla. The ovary is superior in position and consists of a bipartite (split) style with each resulting part being further cleft at its terminal end into 2 clavate stigma lobes. The ovary consists of 4 locules, each containing a single ovule. Of these 4 ovules, three abort, leaving one to form the single hard, bony, pointed seed in the drupaceous fruit (like an olive, having a pit). The fruit is about 2.5 cm long. It consists of the seed sheathed in the sweet pulpy mesocarp which in turn is covered by the reddish-brown, shining exocarp (skin) when ripe. The fruit is partially enclosed at maturity by the calyx. The calyx, which is at first green, consists of the 5 connate striate sepals about 1 to 2 cm long and terminates in a more or less acute tooth. Later as the fruit enlarges it splits the now brown and papery calyx by its differential growth rate. The fruit is edible, but is said to cause symptoms of dizziness similar to intoxication if eaten raw. Many domestic, and no doubt, wild animals feed on the fruits in Mexico. A jelly made from the fruit is widely used in treating coughs and colds.

The leaves have also been used medicinally, in the treatment of rheumatism and bronchial symptoms. The leaves are simple, petiolate, oval or oblong, 8 to 20 cm long by up to 15 cm wide. The margins are entire or nearly so. Venation is pinnate. The bases are obtuse rounded or cordate (heart shaped). The upper leaf surface is green and scabrous (rough to the touch), while the under side of the leaf is yellow-green and tomentose (covered with long soft hairs). They occur alternately to suboppositely on the stout pubescent twigs.

Flower of *Cordia boessieri.*

Two year old seedling of *Cordia boissieri.*

The plant occurs naturally in thickets, chaparral, fence rows, along stream banks and on gravelly slopes. The northern limits of this plant's distribution are Jim Hogg, Hidalgo and Willacy Counties of the Rio Grande Valley of Texas. Its distribution southward extends through the Coahuilan Desert to the states of San Luis Potosi, Vera Cruz and Hidalgo. Eastward, its range extends to Nueva Leon and Tamaulipas.

Although not extensively grown in the Salt River Valley, "trumpillo" has great potential as an ornamental in the low desert areas of Arizona. Plants at the Arizona-Sonora Desert Museum in Tucson, Boyce-Thompson Arboretum and here at the Garden have done remarkably well in spite of their low tolerance for cold. Several years ago Jim Wheat's nursery planted a number of them in the Valley. The plants can be grown from seed or cuttings. Seed is best scarified before planting. Cuttings need a carefully controled environment. Better results could probably be produced by application of one of the readily available synthetic rooting hormones.

References:

Correll and Johnston, **Manual of the Vascular Plants of Texas**

Coulter, **Botany of Western Texas**

Gas, R., Personal Communication

Matschat, **Mexican Plants for American Gardens**

Pesman, **Meet Flora Mexicana**

Standley, **Trees and Shrubs of Mexico**

Weber, J.; Personal Communication

Willis, **A dictionary of the Flowering Plants and Ferns**

—RGE

Flowering branch of *Cordia boissier* showing buds and open flowers.

GARDEN ACTIVITIES

JANUARY

Thurs.	**3rd**	LECTURE—Arizona Trees & Shrubs	**3:00 P.M.**
Sat.	**5th**	FIELD TRIP—Seven Springs	**8:30 A.M.**
Tues.	**8th**	CACTOMANIACS Modern Machining—Henry Triesler	**8:00 P.M.**
Wed.	**9th**	CLASS—Desert Plants	**3:00 P.M.**
Thurs.	**10th**	LECTURE—Arizona Birds & Animals	**3:00 P.M.**
Wed.	**16th**	CLASS—Succulent Plants	**3:00 P.M.**
Thurs	**17th**	LECTURE—Arizona Scenics	**3:00 P.M.**
Wed.	**23rd**	CLASS—Culture of Succulent Plants	**3:00 P.M.**
Thurs.	**24th**	LECTURE—Collecting in Mexico	**3:00 P.M.**
Wed.	**30th**	CLASS—Desert Trees & Shrubs	**3:00 P.M.**
Thurs.	**31st**	LECTURE—Wildflowers of W. Australia	**3:00 P.M.**

FEBRUARY

Sat.	**2nd**	FIELD TRIP—Boyce-Thompson Arboretum	**8:30 A.M.**
Tues.	**5th**	CACTOMANIACS "Biblical Coins"—John Eversole	**8:00 P.M.**
Wed.	**6th**	CLASS—Culture of Trees & Shrubs	**3:00 P.M.**
Thurs.	**7th**	LECTURE—Arizona Cacti in Flower	**3:00 P.M.**
Wed.	**13th**	CLASS DESERT TRIP—Vista Lookout	**8:30 A.M.**
Wed.	**13th**	ART ENTRIES DUE FOR THE 27th CACTUS SHOW	**before 5:00 P.M.**
Sat.	**16th**	ALL OTHER ENTRIES DUE FOR CACTUS SHOW	**before 1:00 P.M.**
Sun thru	**17th**	27th ANNUAL CACTUS SHOW	**Daily 9-5 P.M.**
Sun.	**24th**		
Thurs.	**28th**	LECTURE—Arizona Wildflowers	**3:00 P.M.**

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Table of Contents

Editor's Notes 15
Baboso, *Lemaireocereus hollianus*.....16
Graptopetalum bartrami 17
Aspects of the Desert.....19
Wright's Pincushion, *Mammillaria wrightii*.....20
Cactus Show Time 21
Coobah, *Acacia salicina*.....22
Where Do They Came From?.....24
Garden Activities 24

COVER: What is it? See page 15.

Desert Botanical Garden of Arizona

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Editor's Notes

Every year we get more and more calls asking us when the Cactus Show is going to be held. This year's Show, the Twenty-seventh annual Show, will be from February 17th through the 24th. As usual, it has been planned to open and close on Sundays and to include Washington's Birthday.

We are fortunate to have the Phoenix Gazette as co-sponsor again, as the paper gives the Show a generous amount of publicity prior to the opening and during the Show. We expect to attract over 600 entries this year from over a hundred exhibitors.

Our Cactus Show is like no other in the country, and we've had requests from all over for information on how it is run. Perhaps some day there will be other similar shows, but we're still unique, and we'll always be the oldest. The name may seem to indicate that only cactus is on exhibit, but that's not true. It's just easier to say than "The Twenty-seventh Annual Cactus, leaf succulent, dish garden, arrangements, educational exhibits, junior exhibits, photography, arts and crafts pertaining to the desert Show".

Several changes have been made in the Classification List this year, to expand and clarify some of the sections. Prospective exhibitors should read the List carefully. Please remember that all entries in the arts sections have to be entered from Monday, February 11th up to 5 p.m. on Wednesday the 13th. All entries in other sections should be here from Thursday, the 14th until 1 p.m. on Saturday, the 16th. Judging will begin on Saturday at 4 p.m. The Show will open on the 15th at 9 a.m. and will run daily from nine to five.

We have already had a number of people volunteer to help out during the Show, but we need more hostesses, sales clerks, clerical help and guides. Please phone 947-2800 and volunteer a day or two of your time. We need you.

The Garden has been accumulating many small plants to sell during Show week. These have been given to us by members thinning out their cactus and succulent beds and greenhouses. Have you small plants that you'd like to contribute? We have always found them to be a popular sales item during the Show, and the proceeds go toward improving the Garden.

Even if you can't exhibit or volunteer, do come to the Show. Bring your friends and out-of-town visitors. They will undoubtedly thank you for the chance to see the Show and the Garden.

The photo shows tubers on the root of **Cissus trifoliata**, a succulent vine that grows in our Succulent House. In digging up one bed in the Succulent House, we found this root, with tubers four to five inches in diameter, had grown alongside a section of Orangeburg drainage pipe (made of bitumenized fibers) and had crushed in one side of the pipe as it grew.

Mexican Cactus

BABOSO, ACOMPES
Lemaireocereus hollianus

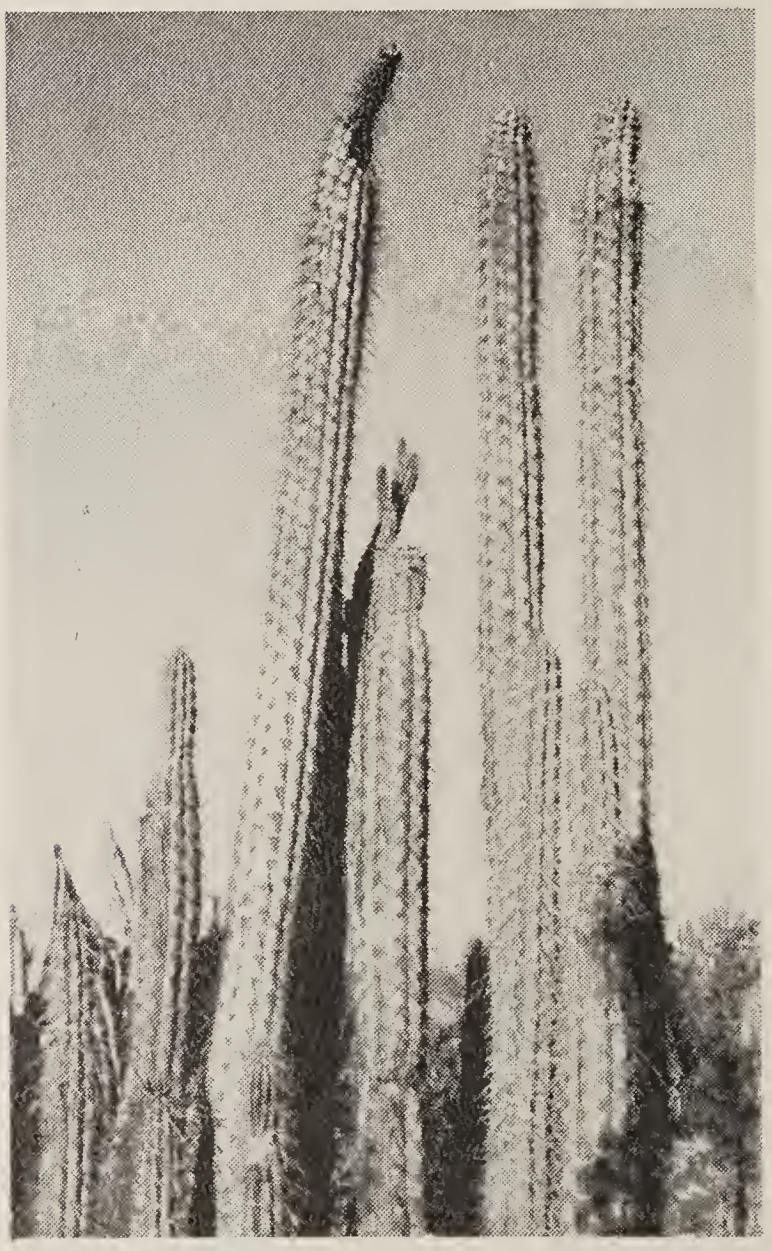
Cactaceae

This strange plant stands out dramatically in the arid low-growing-cactus land of the Tehuacan valley. The very tall stems are startlingly thin, and you wonder how such slender things can stay erect, yet single stems grow up to twelve or fifteen feet high, and when the plants grow in clusters the stems support each other and can attain heights of twenty to twenty-five feet.

The spiny six-inch-diameter stems are simple and branch from the base of the plant. Stems consist of eight to ten acute ribs. Areoles are one-half to one and a half inches apart, with bright red central spines that later turn gray. Centrals are porrect, two to four inches long, with three to five at each areole. There are about 12 deflexed radial spines, unequal in length, spreading, one half to one and a half inches long.

The night-blooming white flowers appear in the upper areoles and are four

A planting of Baboso in the Garden. The center stem shows frost damage from several years ago.



The long, ferocious central spines make a fence of Baboso a really effective barrier.

inches long and three inches wide. There are scales on the ovary and bristles on the flower tube. The unusually large fruit, "as large as a goose egg", is dark red to purple and covered with clusters of spines and bristles that brush off when the fruit is ripe. Seeds are large and shiny black. The "baboso" fruit is very delicious and is one of the three cactus fruit served chilled at your breakfast table in May and June at the hotels in Tehuacan. They can also be bought at the mercados or open markets.

Propagation is by cuttings or by seed. In southern Puebla stems of L. hollianus are used to make impregnable fences around fields and gardens.

This cactus grows well in our Garden in direct sunlight. It will freeze when the temperature drops to 22 degrees F. Stems resemble those of **Rathbunia sonorensis** but are more robust.

Type locality: Tehuacan, Puebla, Mexico.

Distribution: State of Puebla.

REFERENCES

Bravo, Las Cactaceas de Mexico
Britton & Rose, Cactaceae

——WHE

Arizona Wildflower

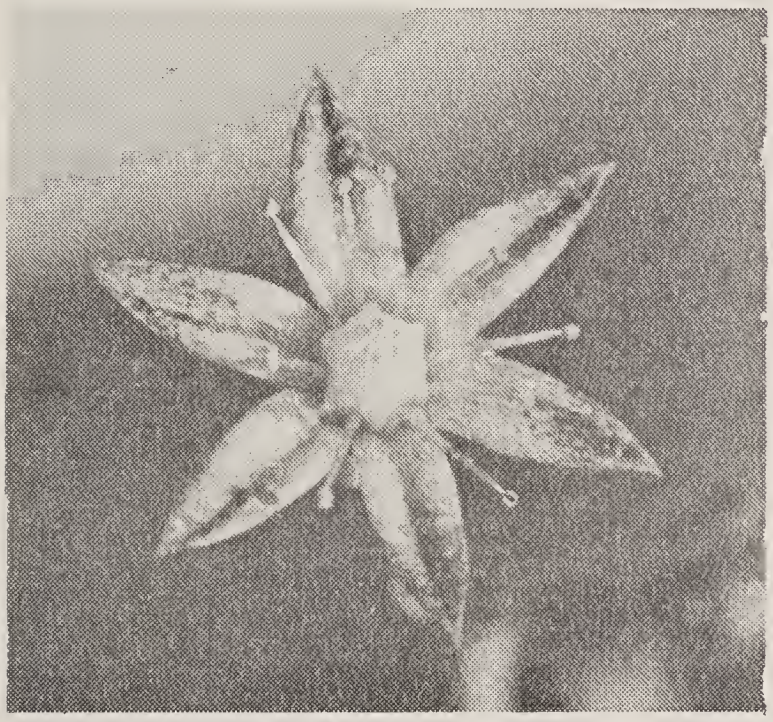
GRAPTOPETALUM BARTRAMI

Crassulaceae
Orpine Family

Though this pretty miniature has no common name, it is one of a genus that has many cultivated species that are popular with succulent fanciers.

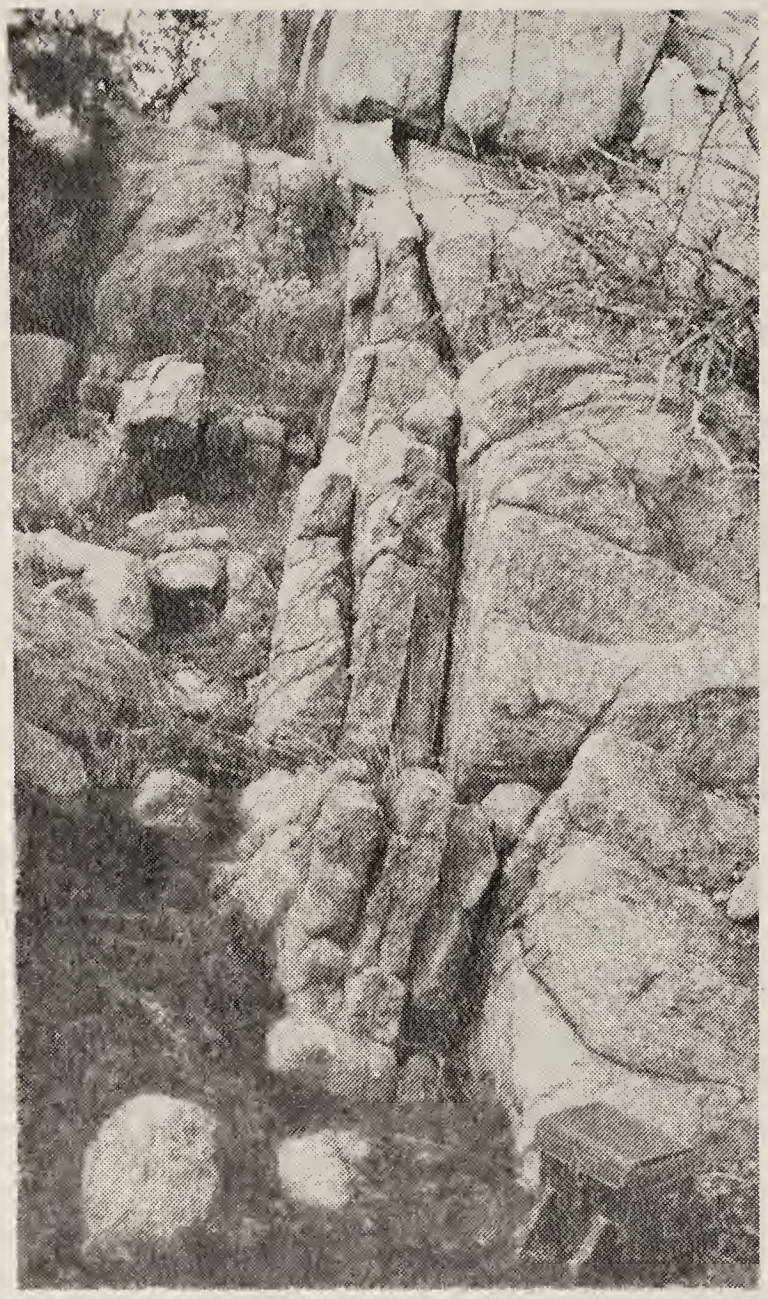
The name means "painted leaf" and refers to the fact that the leaves turn reddish in cold weather.

Graptopetalum is a genus closely related to Echeveria and to Dudleya, and one plant, such as this G. bartrami will get shunted from one to another of the genera depending on botanical opinion. These genera are all perennial succulents, with alternate bract-like leaves in a basal rosette.



Splotches of red tip the petals of the star-shaped flowers, three-quarters of an inch wide.

The succulent leaves grow in a small rosette. Photo taken at Boyce-Thompson Arboretum.



Invisible in this small photo, *G. bartrami* plants are growing in the rock crevices.

In the wild, G. bartrami is a tiny thing, with a rosette of leaves sometimes no bigger than a fifty-cent piece, and a flowering stem a majestic two inches tall. The size of a mature plant depends on the availability of food, and a Graptopetalum can grow to maturity in thin soil in rock crevices. Where there is more nourishment (a little better soil), you get a plant the size of the hand-held one pictured here — the rosette one and a half inches across, and the flowering stem seven inches tall. And when the plants are grown under horticultural conditions they respond by doubling their size again.

Graptopetalum bartrami has a most attractive flower. There is a loose inflorescence of about a dozen buds that open into flat stars as large as three-quarters of an inch across. The "stars" have six lobes and six long stamens that, as the flower ages, spread out and down between the lobes, as our picture shows. Flower color is pale green to yellow, with irregular bands or blotches of red near the tips. Plants in bloom can be found from September to February, according to Kearney & Peebles' "Arizona Flora", but the pictures accompanying this article were taken in January, March and April. Their location also expands the distribution data given in Kearney & Peebles.

Distribution: Patagonia and Tumacacori Mountains in Santa Cruz County; Baboquivari Mountains in Pima County; near Klondyke in Graham County; and near Superior in Gila County. At elevations between 4000 and 5000 ft., in scrub oaks. From Arizona to northern Mexico.

——LD

This mature plant, growing in a split rock, reached the height of seven inches.

ASPECTS OF THE DESERT

In northern Arizona where the great Colorado River enters Arizona, 700-foot-high Glen Canyon Dam holds back the waters to form Lake Powell. When full, the lake has a length of 186 miles, and its red sandstone shoreline, following the contours of many side canyons, is over 1800 miles long.

Arizona Cactus

WRIGHT'S PINCUSHION
Mammillaria wrightii
Cactaceae

This simple, globose pincushion is scattered sparsely over the state but does not grow in colonies. As a matter of fact, don't get discouraged if it takes three or four years before you find your first plant.

At first glance it looks like any other pincushion, but then you will notice its very slender brown curved and hooked central spines, three to an areole. The flaccid body is green but obscured by the tan radial spines, ten to twenty to an areole.

This small cactus, two to three inches in diameter, is two to three and a half inches tall, with a sunken apex, and grows slightly appressed to the ground. Flowers appear in May and June, with pink to purplish-red blossoms, petals one-eighth of an inch wide, linear-lanceolate.

The fruits appear in late summer and are obovoid, one inch long and a half inch wide, green-purple to purple-red, edible and quite juicy, and having pitted brown seeds.

You will find the plants in gravelly plains, desert grassland and wooded areas from 5000 to 8000 ft. elevation. Distribution is from Mohave County east through Yavapai, Pinal, Gila, Pima, Santa Cruz and Cochise counties in Arizona, and into eastern New Mexico.

Mammillaria wrightii was named in 1856 by Dr. Engelmann for Charles Wright (1811-1855) who explored extensively in Texas and Cuba. The plant was later named **Cactus wrightii** by Kuntze in 1891. Britton & Rose in 1923 named it **Neomammillaria wrightii** and then in 1926 Orcutt named it **Chilitia wrightii.**

Culture is the same as for other hooked-spine mammillarias — filtered sunshine, good drainage, lots of water but let the plant dry thoroughly before rewatering. Propagation is by seed.

Type locality: Anton Chico on the Pecos River, east of Santa Fe, New Mexico.

Distribution: Arizona, northeast and southeast New Mexico, southwest Texas.

REFERENCES

Benson, Cacti of Arizona
Britton & Rose, Cactaceae
Earle, Cacti of the Southwest

——WHE

If any cactus is a "shrinking violet", this inch-and-a-half high *M. wrightii* is one.

The Flower Preservers have just let us know that Garden members who have taken the Flower Preservation classes in the past may audit the classes this spring. Will eligible members please phone the Garden at 947-2800 so we will know how many extra chairs to put out?

FEBRUARY 17-24 — CACTUS SHOW TIME

You'll enjoy our Twenty-Seventh Annual Cactus Show this year. It's going to be a "more" show — more different kinds of cacti, more succulents, more planters, more arrangements, (with new categories this year), and greatly expanded arts and crafts sections. We're pretty sure you'll think 1974's "more" show is "the most".

Desert Trees and Shrubs

COOBAH
Acacia salicina Benth.
Leguminosae
Pea Family

In the August-September 1965 issue of the Saguaroland Bulletin a short article was presented on **Acacia salicina**, the Coobah or Broughton Willow. We feel that another article is due, since the plants growing at the garden are now more mature and representative of the species.

Coobah's yellow flowers are fragrant. The five-inch "leaves" are not leaves, but petioles.

A. salicina is very widespread in Australia in one or more of its varietal or ecological forms. In North Australia and mesic areas of other states these plants grow along creek banks in thickets. They reproduce in this environment primarily by suckering. This riparian habitat and the plant's general appearance have led directly to the common name "native willow". It is, of course, not in the willow family. In Queensland it grows in open forest stands. In the great central interior, which is very arid (5 to 10 inches of rainfall a year), the plant is hardly more than a shrub. The tropical and subtropical form was at one time designated a distinct species, **A. varians** Benth. It has now been synonymized with **A. salicina**. This mesic form lacks the thickened margin on the phyllodia. Phyllodia are the dorsiventrally flattened petioles of the leaves. They occur as a specialization on many of the Australian **Acacia spp**. The leaf blade itself may or may not drop off the petiole. In the case at hand the blades abscise very early in the development of the leaf. This leaves the flattened leaf-like petiole (phyllode) to carry on the photosynthetic work of the plant. In addition to the difference in the margin of the above mentioned variety, **A. salicina** var. **varians**, it differs in having a more prominent midvein with the lateral veining almost pinnate. This is in contrast to the less pronounced midvein and the reticulate lateral veining of the shrubby desert forms. In addition, the more xeric forms have a distinct gland on the dorsal margin near the base of the phyllode, which is not found in the var. **varians**. All of these differences in addition to size of phyllode and fruit plus those in the funiculus of the seed caused Bentham to be reluctant in reducing his species **A. varians** to a variety in his

Australia's Coobah, with its delicate weeping habit, would be an addition to Arizona's trees.

authoritative work, **Flora Australensis.**

The tree forms may reach a height of 15m (45 ft.), forming an upright spreading crown. The informal, pendulous twigs and branches have glaucous-green, glabrous foliage consisting of broad-linear to lanceolate to slightly falcate phyllodia. The apex of the phyllodia may be acuminate to obtuse. They are 4 to 12 cm (1½ to 5½ in.) long and 4 to 20 mm (5-16 to ¾ in.) wide. Down the center runs the more or less prominent nerve mentioned above. To either side of this nerve the venation may be reticulate to near pinnate. The typical sulphur yellow, fragrant, globose flower heads consist of 15 to 25 individual flowers. Each of these is five-merous. The calyx is truncate and minutely five lobed. The heads occur in racemes of from 2-6 heads. Occasionally the inflorescence may appear paniculate when some of the phyllodia have abscised near the terminal end of the twigs. The fruit is a legume (bean), 2.5 to 7.5 cm (1 to 3 in.) long and approximately 1 cm (1-5 in.) wide. The woody valves dehisce (split) from the free end and curl back slightly toward the peduncle (flower stalk). Each valve is somewhat convex, hard and thick. The seeds are orbicular-longitudinal, black to brown with a thickened scarlet funiculus (stalk by which the ovule or seed is attached to the ovary wall, in this case fused to the woody valves). After ripening the seed quickly falls free of the valves, thus making seed collection difficult to time. The bark is rather thin, gray and fissured.

Coobah is a striking addition to our local horticultural flora. It approaches **Pittosporum phillyraeoides** in appearance, but the flowering, which occurs sporadically throughout the year, is more attractive. It would prove useful as a delicate screen or a handsome specimen. It could be used in the home yard without growing out of proportion with the average home and its landscape. In addition, it has a wide tolerance range of salt, soil and moisture conditions. Plants may be obtained by planting the scarified seed in the fall. A much easier way to increase the supply of these plants would be from cuttings. The only known pest of which we are aware is a species of mistletoe, **Loranthus exocarpi** Behr., which attacks the plants in their native habitat.

REFERENCES

Beard, J. S., **West Australian Plants**
Bentham, G., **Flora Australensis**
Black, J. M., **Flora of South Australia**

——RGE

WHERE DO THEY COME FROM?

Does the Garden get many visitors from other countries? We took a quick turn through our guest book for 1973 and found that in only one year we had visitors from an amazingly high number of countries, besides visitors from all the States, including Alaska and Hawaii, and all the Canadian provinces plus Yukon Territory and Northwest Territories. Look at our list of sixty-one faraway places, and you'll agree that the Garden is known worldwide.

EUROPE
England
Scotland
Wales
Ireland
Netherlands
Belgium
France
Spain
Italy
Switzerland
Austria
Germany
Sweden
Denmark
Norway
Romania
Poland
Hungary
Yugoslavia
Greece
Turkey
USSR

AFRICA
Nigeria
Ethiopia
South Africa
Rhodesia
Egypt
Morocco
Senegal
Ghana

THE AMERICAS
Canada
Mexico
Nicaragua
Panama
Peru
Brazil
Trinidad
Bermuda
Puerto Rico
Virgin Islands
Cuba
Venezuela
Honduras
Netherlands Antilles

MID-EAST
Iran
Trucial Oman
Israel

ASIA
India
Pakistan
Japan
Thailand
Korea
Indonesia
S. Vietnam
Malaysia
Taipei

PACIFIC
Australia
New Zealand
Fiji
Philippines
Guam

GARDEN ACTIVITIES

FEBRUARY

Sat.	2nd	FIELD TRIP—Boyce-Thompson Arboretum		8:30 A.M.
Tues.	5th	CACTOMANIACS		
		"Biblical Coins"—John Eversole		8:00 P.M.
Wed.	6th	CLASS—Culture of Trees & Shrubs		3:00 P.M.
Thurs.	7th	LECTURE—Arizona Cacti in Flower		3:00 P.M.
Wed.	13th	CLASS DESERT TRIP—Vista Lookout		8:30 A.M.
Wed.	13th	ART ENTRIES DUE FOR THE 27th CACTUS SHOW	before	5:00 P.M.
Sat.	16th	ALL OTHER ENTRIES DUE FOR CACTUS SHOW	before	1:00 P.M.
Sun. thru Sun.	17th 24th	27th ANNUAL CACTUS SHOW	Daily	9-5 P.M.
Thurs.	28th	LECTURE—Arizona Wildflowers		3:00 P.M.

MARCH

Sat.	2nd	FIELD TRIP—First Water Ranch	8:30 A.M.
Tues.	5th	CACTOMANIACS	
		"Cacti Spines"—Robert Moulis	8:00 P.M.
Wed.	6th	CLASS—Desert Plants	3:00 P.M.
Thurs.	7th	LECTURE—Arizona Trees & Shrubs	3:00 P.M.
Wed.	13th	CLASS—Succulent Plants	3:00 P.M.
Thurs.	14th	LECTURE—Arizona Birds & Animals	3:00 P.M.
Wed.	20th	CLASS—Culture of Succulent Plants	3:00 P.M.
Thurs.	21st	LECTURE—Arizona Scenics	3:00 P.M.
Wed.	27th	CLASS—Desert Trees & Shrubs	3:00 P.M.
Thurs.	28th	LECTURE—Collecting in Mexico	3:00 P.M.
Sat.	30th	CLASS—Flower Preservation	9:00 A.M.

TWENTY-SEVENTH ANNUAL

CACTUS SHOW

February 17th to and
including February 24th, 1974

Sponsored by
The Phoenix Gazette and the
Desert Botanical Garden

Webster Auditorium
Desert Botanical Garden
Papago Park

entrances at
5800 E. Van Buren & 6400 E. McDowell
Phoenix, Arizona
Telephone 947-2800

SHOW OPEN DAILY 9 A.M. TO 5 P.M. — ADMISSION FREE

2-74

CLASSIFICATIONS

SECTION I **CACTI***

Class A. **POTTED** (Limited to 3 named entries per division)

DIVISIONS

1. Opuntia
2. Cereus
3. Echinocereus
4. Rebutia
5. Chamaecereus
6. Lobivia
7. Echinopsis
8. Ariocarpus
9. Stenocactus
10. Ferocactus
11. Echinocactus
12. Gymnocalycium
13. Astrophytum
14. Thelocactus
15. Echinomastus
16. Coryphantha
17a. Mammillaria (hooked-spine)
17b. Mammillaria (milky)
17c. Mammillaria (other)
18. Notocactus
19. Neoporteria
20. Parodia
21. Turbinicarpus
22. Pediocactus
23. Any other species**
24. Seedlings

Class B. **CRESTED**

Div. 1. Crested Cacti, own root

Div. 2. Crested Cacti, grafted

Class C. **MONSTROSE**

Class D. **GRAFTED**

Class E. **COLLECTIONS** (5 different species of a genus)

SECTION II **SUCCULENTS OTHER THAN CACTI***

Class A. **POTTED** (Limited to 3 named entries per division)

DIVISIONS

1. Aeonium
2. Agave
3. Aloe
4. Bryophyllum
5. Crassula
6. Dudleya
7. Echeveria
8. Euphorbia
9. Gasteria
10. Hawthoria
11. Kalanchoe
12. Lithops
13. Mesembryanthemum
14. Pleiospilos
15. Sedum
16. Stapelia
17. Yucca
18. Bromeliad
19. Hoya
20. Any other species**
21. Seedlings

Class B. **COLLECTIONS** (5 different species of a genus)

SECTION III **DESERT TREES AND SHRUBS***

Class A. TREES

Class B. SHRUBS

Class C. DESERT BONSAI

Class D. SEEDLINGS

Class E. ANY OTHER DESERT PLANTS

SECTION IV-A **PLANTERS** (rooted plants)***

Class A. **DISH GARDENS**

DIVISIONS

1. Cacti
2. Other Succulents
3. Cacti & Other Succulents

*Grown by exhibitor at least 3 months.

**Additional Divisions will be set up when 3 or more species of a a genus are entered.

Class B. **TERRARIUM** (Cacti and/or other succulents)
Class C. **HANGING BASKETS** (")
Class D. **STRAWBERRY JARS** (")
Class E. **PATIO PLANTERS** (Cacti and/or desert plants)

SECTION IV-B **ARRANGEMENTS** (no rooted plants)***
Class A. **CENTERPIECES**

DIVISIONS

1. Cacti
2. Other succulents
3. Cacti & other succulents
4. Dried Arizona desert material
5. Southwestern theme
6. Any other

The above divisions of Class A will apply to Classes B through E.

Class B. **ARRANGEMENTS** on or against the wall
Class C. **CORSAGES**
Class D. **BUTTON** (arrangement on a button)
Class E. **MINIATURE ARRANGEMENT** (under 5" high)

SECTION V **PHOTOGRAPHY, DESERT SUBJECTS**
(Exhibitor's original work. Each class will be divided into three subjects: Landscape, Wildlife, and Plants. Only 3 entries per person in any one subject.)

Class A. BLACK & WHITE PRINTS
Class B. COLOR PRINTS
Class C. TRANSPARENCIES (2x2 or 3x5)

SECTION VI **ARTS, DESERT SUBJECTS**
(Exhibitor's original work, limited to 3 in any class. Entries in classes A, B, C, and D must be framed.)

Class A. OIL PAINTINGS
Class B. WATERCOLORS
Class C. ACRYLICS
Class D. GRAPHICS****
Class E. OTHER MEDIA
Class F. SCULPTURE
Class G. CRAFTS
Class H. NATURAL DESERT WOODS (uncarved)

SECTION VII **EDUCATIONAL EXHIBITS**

SECTION VIII **JUNIOR CLASS**
(Elementary school students may enter as individuals or as a group in any of the preceding classifications)

SECTION IX **OPEN: NON-COMPETITIVE**

***One entry per division in each class. Accessories permitted, but no artificial foliage or flowers or artificial color. "Desert Spoons" not permitted.

****Included in this class are: pencil, ink, charcoal, pastel, original lithographs, original serigraphs, original block prints.

The Twenty-seventh annual Cactus Show will be held in the Webster Auditorium, Desert Botanical Garden, February 17-24th, and is open to all persons wishing to enter in any of the aforementioned classifications. No entry fee is charged.

All entries in Sections V and VI (Photography and Arts) must be entered by Wed., Feb. 13th, 5 p.m. All other entries can be entered from Thurs., Feb. 14th to Sat., Feb. 16th, 1 p.m.

Judging will be held at 4 p.m. February 16th.

Sweepstakes will be awarded for the most Blue Ribbons accumulated in the first four Sections. Ribbons for 1st, 2nd, 3rd, and Honorable Mentions will be awarded, if merited, in all classifications. Small trophies will be given for outstanding exhibits in the various classes.

Winning exhibits of 1973 may not be entered in this year's Show.

Scale of points is as follows:

CACTI & SUCCULENT SPECIMEN PLANTS	
Condition	45
Nomenclature	15
Rarity	10
Size or degree of maturity	10
Staging	20
	100

BUTTON and MINIATURES	
Scale	40
Design	30
Color Harmony	20
Condition	10
	100

ARRANGEMENTS and DISH GARDENS	
Design	30
Color	20
Identification of material	10
Originality	20
Distinction	10
Condition	10
	100

CORSAGES	
Technique	15
Design	25
Color	15
Suitable combination of material	15
Distinction	20
Condition	10
	100

Exhibits may be removed only after 5 P.M., Sunday, Feb. 24th. The Garden will take all due care and caution but will assume no responsibility for loss or breakage, or for unclaimed exhibits.

The "Handbook for Flower Shows," published by the National Council of State Garden Clubs, Inc., will be used as the basis of exhibiting, point scoring and judging of all Arrangements, Dish Gardens, Miniatures, etc. The Standard system of Judging will be used. The decision of the Judges will be final.

SAGUARO LAND
BULLETIN
DESERT BOTANICAL GARDEN of ARIZONA

Vol. XXVIII MARCH, 1974 No. 3

REPORT OF THE 27th ANNUAL CACTUS SHOW AND AWARD WINNERS

REG MANNING

SAGUAROLAND BULLETIN

Published and owned by the Arizona Cactus and Native Flora Society, sponsors of the Desert Botanical Garden of Arizona, P.O. Box 5415, Phoenix 85010. Saguaroland Bulletin attempts to promote the Garden and to provide information on the desert plants and their culture. Subscription $5.00 per year, the subscription including active membership in the Society and the Desert Botanical Garden. Issued 10 times a year.

W. HUBERT EARLE, Editor
LILLIAN DIVEN, Associate Editor

Vol. XXVIII | MARCH, 1974 | No. 3

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Table of Contents

Report of the 27th Annual Cactus Show 27
Sweepstakes and Trophy Winners 29
Ribbon Award Winners 30
Garden Activities 36

COVER: Emma Oscarson's First Prize Agave,
A. filifera var *compacta.*

Desert Botanical Garden of Arizona

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Garden Open Daily 9 A.M. - 5 P.M. Including Holidays

REPORT OF THE 27th ANNUAL CACTUS SHOW

Colorful, Amazing, Exciting, Best Yet, Ingenious — just a few of the exclamations overheard as visitors surged through the Show.

The plants, arrangements and dish gardens were all in excellent shape and appealed through their appearance, staging and variety. Several new genera of cacti were exhibited for the first time by several new exhibitors.

Not only were we happy to have excellent new exhibitors, but we were also delighted with the very high quality of plants in the show. For example, in the Cacti Sweepstakes there was a spread of only eight judge-awarded points among the four top contenders for the trophy. This was really close competition and made for a far better show than one in which a single exhibitor outscored all the others.

The Evans Cactus Garden, Phoenix, had an excellent exhibit of nine grafted cacti with explanations of why they were grafted. It was of great benefit to people interested in grafting some of their own plants. Also in the show was a commercial exhibit showing mass plantings of rare cacti collected in Mexico.

New to the show this year was a herb exhibit by Mrs. Floyd Betts of Mesa who displayed about fifty different herbs that can be grown here in the Valley. The various uses of herbs were suggested. Local herb growers who have had difficulty in obtaining plants, and would-be herb growers were very enthusiastic about this exhibit.

The "energy pinch" caused our attendance to drop 27 percent, but, strangely enough, our income was 8 percent higher than last year's. We learned of an exhibit elsewhere in the Valley where attendance dropped 75 percent below last year's — perhaps the difference between that figure and ours means that many people realize the Cactus Show is worth saving gas for.

The Phoenix Gazette, our co-sponsor, gave us good pre-show write-ups and full pages during the Show. We were also given coverage in the other local newspapers and in papers in communities as far away as thirty miles from Phoenix. Radio and TV stations also gave us publicity. All this excellent coverage was greatly appreciated by the Garden.

The Show had 785 exhibits, shown by 120 entrants, more exhibits and entrants than we had last year.

A popular feature of each year's show is the sale of plants donated by members and friends who give us their extra cacti and succulents each year so that we can sell them for the benefit of the Garden. The donors included: J. Harry Lehr, Mr. and Mrs. Frank Hennessey, Lester Simms, Fred Baselt, Bob Moulis, Wm. C. Lewis, Nola Belford, Mrs. George Probert, Mr. and Mrs. Fred Starbuck, Mr. and Mrs. J. L. Burton, J. Grissom, Angela Bool, and Lela Turner.

Thelma MacDougall was responsible for organizing the 171 hot (and very delicious) lunches served to the hungry volunteers during the Show. You may be interested to learn that the cost per serving of these tasty meals was only forty-one cents. We're still not sure how it was done so economically. Thelma's "staff" consisted of: Lela Turner, Betty Schrieber, Elsa Kraatz, Lola Bea Engard, Dorothy O'Rourke, Ann McGill, Nevelyn Hopkins and Angie Nicosia.

It is surprising the number of volunteers that are needed to expedite a Show such as ours. They help set up records for entering and scoring entries, act as hosts and hostesses, guides, "traffic officers", sell plants, answer questions, take phone calls, type, run errands, and handle numerous other duties. They all work hard, yet many look forward each year for helping at the Show for half a day to five days each. The only pay they receive is the satisfaction of helping make the Show successful. Here are this year's volunteers — how about a loud cheer for them: Treva Abramson, Janet Alsever, Anne Amacker, John Barron, Pat Beauvais, Kay Betts, Floyd Betts, Gretchen Boland, Howard Cox, Lillian Diven, M. Genevieve Evans, Alice Feffer, Mary Forman, Merrill Freeman, Helen Friedrichs, Elizabeth Fritz, Mary Getz, Wallace Gibbs, Eleanor and Carl Groschke.

Also Roger Hawk, Frank and Phil Hennessey, Isabelle Holt, Nevelyn Hopkins, Margaret Jenkins, Cathy Johnson, Elsa and Elmer Kraatz, William Lewis, Thelma MacDougall, Carol McFarlan, Barbara and Charles Merbs, Ruth Mountain, Bob Moulis, Penny Naumoff, Ruby and Paul Neumann, Rena Norviel.

And Genevieve Oppen, Dorothy O'Rourke, Alice and Wendell Phillips, Rachel Pruet, Dorothy Reiff, Rosebud Rudolph, Mrs. William Rutschman, Betty Schrieber, Helen Seder, Gertrude Siegel, Joan Smith, Mr. and Mrs. Fred Starbuck, Ganna Stedman, Mrs. F. C. Stiles, Mr. and Mrs. Frank Stryke, Laura Thomas, Mr. and Mrs. William Tucker, Lela Turner, Dorothea Walter, L. A. Walters, Bill Williams, James Williams, Robert Wilson, Barbara Worbington, Rheba Wright and Mildred Yenchius.

Fred Baselt volunteered again this year to be our "official photographer". You will see examples of his fine work in this issue.

The Flower Preservers, organized in 1972 by Janet Alsever, had been busy since last year's Show preserving flowers to exhibit and to sell this year. Their exhibit was a colorful part of the Show and their sales added nicely to our total figure this year.

This is a good time to remind you that a new series of Flower Preservers Classes will begin on March 30th. Applications for the six-week course, costing $34.50, should be made immediately since each of the three courses is limited to 14 students. Application forms and more information are available here at the Garden, so write or phone us as soon as you can if you are interested in this unusual handicraft.

The Garden's Staff and our "old-timer" exhibitors all agree that the 27th Annual Cactus Show was, without exaggeration, the best in memory. There was only one minor "complaint" — even trophy winners said they hope we'll have more new exhibitors next year, because new exhibitors add to the challenge and variety of the Show. So, friends and members, start now to plan your entries in the 28th Annual Cactus Show, and see if we can make it better than the 27th. Maybe that isn't possible, but let's try.

Best Cactus in Show Award went to L. Bremer for this *Melocactus delessertianus.*

TWENTY-SEVENTH ANNUAL CACTUS SHOW AWARD WINNERS

SWEEPSTAKES AWARDS

CACTI: L. Bremer, Sun City.
LEAF SUCCULENTS: Fran Tolleson, Phoenix.
ARRANGEMENTS: Mrs. Ted Chambers, Apache Junction.
FLOWER PRESERVERS: Pat Beauvais, Phoenix.

TROPHY WINNERS

BEST CACTUS: L. Bremer.
MAMMILLARIA: L. Bremer.
DISH GARDEN: Fran Tolleson.
PATIO PLANTER: Mrs. F. R. Hennessey, Phoenix.
COLLECTION OF 5 CACTI: William Lewis, Phoenix.
LEAF SUCCULENT: Henry Triesler, Phoenix.
EDUCATIONAL: Kay Betts, Apache Junction.
CRESTED CACTUS: Bob Moulis, Phoenix.
CENTERPIECE: Lela Turner, Phoenix.
ARRANGEMENT AGAINST WALL: Helen Waltz, Tempe.
BUTTON ARRANGEMENT: Isabelle Strandberg, Phoenix.
DESERT WOOD: Kenneth C. Balcomb, Apache Junction.
BLACK & WHITE PRINT: Agnes Holst, Phoenix.

Astrophytum myriostigma that won a blue ribbon for Warner Dodd.

Fran Tolleson's first-prize *Notocactus haselbergii*.

COLOR PRINT: Walter J. Groll, Sr., Glendale.
TRANSPARENCY: Dorothy O'Rourke, Phoenix.
OIL PAINTING: Zoraida Twitty, Phoenix.
WATERCOLOR: Ruth Blomeyer, Scottsdale.
DESERT CRAFTS: Ellen Oonk, Scottsdale.
COMMERCIAL: Evans Cactus Garden.

RIBBON AWARDS

SECTION I, CACTI. CLASS A, POTTED PLANTS.

1. OPUNTIA. 1st, Dottie Battiest. 2nd, Fran Tolleson. 3rd, Emma Oscarson. 4th, Al Bellerue.
2. CEREUS. 1st, Bob Moulis. 2nd, Emma Oscarson. 3rd, Mary Forman.
3. ECHINOCEREUS. 1st, Bob Moulis. 2nd, Fran Tolleson. 3rd and 4th, L. Bremer.
4. REBUTIA. 1st and 2nd, Wm. C. Lewis. 3rd, Emma Oscarson.
5. CHAMAECEREUS. 1st, Mrs. F. R. Hennessey. 2nd, Mrs. R. Enz. 3rd, Fran Tolleson.
6. LOBIVIA. 1st, Warner Dodd. 2nd and 3rd, Mrs. F. R. Hennessey.
7. ECHINOPSIS. 1st, Dorothy Hicks. 2nd, Fay Freed. 3rd, Fran Tolleson.
8. ARIOCARPUS. 1st, Wm. C. Lewis. 2nd, Fran Tolleson. 3rd, L. Bremer. 4th, R. E. Pribbenow.
9. STENOCACTUS. 1st and 2nd, Mrs. F. R. Hennessey.
10. FEROCACTUS. 1st, 2nd and 3rd, L. Bremer.
11. ECHINOCACTUS. 1st and 2nd, L. Bremer. 3rd, John R. Graham.
12. GYMNOCALYCIUM. 1st, Wm. C. Lewis. 2nd and 3rd, Mrs. F. R. Hennessey.
13. ASTROPHYTUM. 1st, Warner Dodd. 2nd, Emma Oscarson. 3rd, Fran Tolleson. 4th, Al Bellerue.
14. THELOCACTUS. 1st and 2nd, Bob Moulis. 3rd, L. Bremer.
15. ECHINOMASTUS. 1st, Fran Tolleson. 2nd, Bob Moulis. 3rd and 4th, Mrs. F. R. Hennessey.

16. CORYPHANTHA. 1st, Mrs. F. R. Hennessey. 2nd and 4th, L. Bremer. 3rd, Bob Moulis.
17-A. MAMMILLARIA, Hooked spine. 1st, Mrs. F. R. Hennessey. 2nd and 3rd, Fran Tolleson. 4th, L. Bremer.
17-B. MAMMILLARIA, Milky sap. 1st, L. Bremer. 2nd and 3rd, Wm. C. Lewis. 4th, Bob Moulis.
17-C. MAMMILLARIA, Other. 1st, Emma Oscarson. 2nd and 4th, Fran Tolleson. 3rd, L. Bremer.
18. NOTOCACTUS. 1st, Fran Tolleson. 2nd, Mrs. F. R. Hennessey. 3rd, Wm. C. Lewis. 4th, John R. Graham.
19. NEOPORTERIA. 1st, Wm. C. Lewis. 2nd, G. Oppen. 3rd, John R. Graham.
20. PARODIA. 1st, Wm. C. Lewis. 2nd and 3rd, Mrs. F. R. Hennessey.
21. TURBINICARPUS. 1st, Wm. C. Lewis. 2nd and 3rd, L. Bremer.
22. PEDIOCACTUS. (No entries.)
23. ANY OTHER SPECIES. 1st, R. E. Pribbenow. 2nd, Mrs. F. R. Hennessey. 3rd, Emma Oscarson. 4th, Wm. C. Lewis.
24. SEEDLINGS. 1st, Charles Merbs. 2nd and 3rd, John R. Graham.
25. MELOCACTUS. 1st, 2nd and 3rd, L. Bremer.
26. PELECYPHORA. 1st and 4th, Fran Tolleson. 2nd, L. W. Bakken. 3rd, Charles Merbs.
27. MAMMILLOPSIS. 1st, G. Oppen. 2nd, Emma Oscarson. 3rd, Wm. C. Lewis.
28. OREOCEREUS. 1st, Paul Neumann. 2nd, Mrs. F. R. Hennessey. 3rd, John R. Graham.
29. OBREGONIA. 1st, Charles Merbs. 2nd, Bob Moulis. 3rd, Mrs. F. R. Hennessey.

SECTION I, CACTI. CLASS B, CRESTED
1. OWN ROOT. 1st and 4th, Bob Moulis. 2nd, Emma Oscarson. 3rd, Fran Tolleson.
2. GRAFTED. 1st, 2nd and 3rd, Bob Moulis.

CLASS C. MONSTROSE. 1st, Mrs. F. R. Hennessey. 2nd, Henry Triesler. 3rd, Bob Moulis.
CLASS D. GRAFTED. 1st and 2nd, Bob Moulis. 3rd, Fran Tolleson.
CLASS E. COLLECTIONS. 1st and 2nd, Wm. C. Lewis. 3rd, Mrs. F. R. Hennessey.

SECTION II, SUCCULENTS. CLASS A, POTTED PLANTS
1. AEONIUM. 1st and 2nd, Fran Tolleson. 3rd, Mrs. R. I. Turner.
2. AGAVE. 1st, Emma Oscarson. 2nd, Al Bellerue. 3rd, Bob Moulis. 4th, Mrs. F. R. Hennessey.
3. ALOE. 1st and 3rd, Bob Moulis. 2nd, Fran Tolleson. 3rd, Virginia Carnahan.
4. BRYOPHYLLUM. 1st. Dottie Battiest.
5. CRASSULA. 1st, Henry Triesler. 2nd, Martha Passwater.
6. DUDLEYA. 1st, 2nd and 3rd, Henry Triesler.
7. ECHEVERIA. 1st, Fran Tolleson. 2nd, Bob Moulis. 3rd, Isabelle Strandberg.
8. EUPHORBIA. 1st, Mrs. F. R. Hennessey. 2nd, G. Oppen. 3rd, Bob Moulis. 4th, Fran Tolleson.
9. GASTERIA. 1st and 3rd, Emma Oscarson. 2nd, Henry Triesler.
10. HAWORTHIA. 1st and 3rd, Bob Moulis. 2nd and 4th, Fran Tolleson.
11. KALANCHOE. 1st, Virginia Carnahan. 2nd, Fran Tolleson. 3rd, Mrs. R. I. Turner.
12. LITHOPS. 1st, Charles Merbs.
13. MESEMBRYANTHEMUM (no entries)
14. PLEIOSPILOS (no entries)
15. SEDUM. 1st and 2nd, Fran Tolleson.

A blue ribbon was awarded to Bob Moulis for this *Aloe longistyla*.

16. STAPELIA. 1st and 2nd, Mary Forman.
17. YUCCA (no entries)
18. BROMELIAD. 1st, 2nd and 3rd, Isabelle Strandberg.
19. HOYA (no entries)
20. ANY OTHER SPECIES. 1st, Henry Triesler. 2nd and 3rd, Charles Merbs. 4th, G. Oppen.
21. SEEDLINGS. 1st and 3rd, Mary Forman. 2nd, Charles Merbs.
22. FAUCARIA. 1st, Emma Oscarson. 2nd and 3rd, Martha Passwater.
23. SENECIO/KLEINIA. 1st, Fran Tolleson. 1st, Fran Tolleson. 2nd, Emma Oscarson.

SECTION II, SUCCULENTS. CLASS B, COLLECTIONS. 1st, Fran Tolleson.
SECTION III, DESERT TREES AND SHRUBS
CLASS A. TREES. (no entries)
CLASS B. SHRUBS. (no entries)
CLASS C. DESERT BONSAI. 1st, H. Bartholomay. 2nd, Fran Tolleson.
CLASS D. SEEDLINGS. (no awards)
CLASS E. ANY OTHER DESERT PLANTS. (no entries)

SECTION IV-A, PLANTERS
CLASS A. DISH GARDENS
1. CACTI. 1st, Mrs. Edward Karner. 2nd, Al Bellerue. 3rd, Fran Tolleson. 4th, Emma Oscarson.
2. OTHER SUCCULENTS. 1st, Fran Tolleson. 2nd, Mrs. R. I. Turner. 3rd, C. R. Baranowski.
3. CACTI AND OTHER SUCCULENTS. 1st, Fran Tolleson. 2nd, Stan Sieracki. 3rd, Mrs. R. I. Turner. 4th, Mrs. F. C. Stiles.

Mrs. F. R. Hennessey exhibited this "Ming-tree-like" Faucaria hybrid.

CLASS B. TERRARIA. 1st, Fran Tolleson. 2nd, Al Bellerue. 3rd, Lucille Earle. 4th, Virginia Carnahan.
CLASS C. HANGING BASKETS. 1st, H. Bartholomay. 2nd, Alice Feffer. 3rd, Isabelle Strandberg.
CLASS D. STRAWBERRY JARS. 1st, Dottie Battiest.
CLASS E. PATIO PLANTERS. 1st, Mrs. F. R. Hennessey. 2nd, Virginia Carnahan. 3rd, Chris Cook. 4th, Jean Oehler.

SECTION IV-B. ARRANGEMENTS
CLASS A. CENTERPIECES.
1. CACTUS. 1st, Mrs. R. I. Turner. 2nd, Emma Oscarson.
2. OTHER SUCCULENTS. 1st, Mrs. R. I. Turner. 3rd, Emma Oscarson.
3. CACTI AND OTHER SUCCULENTS. 1st, Mrs. R. I. Turner.
4. DRIED ARIZONA DESERT MATERIAL. 1st, Mrs. Ted Chambers. 2nd, Margaret Jenkins.
5. SOUTHWESTERN THEME. 1st, Mrs. Ted Chambers. 3rd, Margaret Jenkins.
6. ANY OTHER. 1st, Mrs. Ted Chambers.

CLASS B, ARRANGEMENTS ON OR AGAINST WALL.
1. CACTUS. 1st, Mrs. R. I. Turner. 2nd, Mrs. Joseph Nuber.
2. OTHER SUCCULENTS. 1st, Mrs. R. I. Turner.
3. CACTI AND OTHER SUCCULENTS. 2nd, Mrs. Joseph Nuber.
4. DRIED ARIZONA DESERT MATERIAL. 1st, Helen Waltz. 2nd, Mrs. R. I. Turner. 3rd, Virginia Carnahan. 4th, Mrs. Joseph Nuber.
5. SOUTHWESTERN THEME. 1st, Mrs. R. I. Turner. 2nd, Mrs. Joseph Nuber. 3rd, Dorothy Hicks. 4th, Mrs. Ted Chambers.
6. ANY OTHER. 1st, Isabelle Strandberg. 2nd, Mrs. Ted Chambers. 3rd, Dorothy Hicks. 4th, Mrs. R. I. Turner.

CLASS C, CORSAGES.
(no awards Divisions 1, 2 or 3)

This rare epiphytic cactus, *Hatiora salicornioides*, shown by H. Bartholomay, is leafless and spineless and bears bright yellow flowers.

4. DRIED ARIZONA DESERT MATERIAL. 1st, Mrs. Ted Chambers. 2nd, Isabelle Strandberg.
5. SOUTHWESTERN THEME. 1st, Mrs. Ted Chambers.

CLASS D, BUTTON ARRANGEMENTS.

1. CACTUS. Mrs. Ted Chambers.

(no award Division 2)

3. CACTI AND OTHER SUCCULENTS. 1st, Mrs. Joseph Nuber. 2nd, Jenny Blomeyer.
4. DRIED ARIZONA DESERT MATERIAL. 1st, Isabelle Strandberg. 2nd, Helen Waltz. 3rd, Mrs. Ted Chambers.
5. SOUTHWESTERN THEME. 1st, Mrs. Ted Chambers.
6. ANY OTHER. 2nd, Mrs. Ted Chambers.

CLASS E. MINIATURE ARRANGEMENTS.

(no awards Divisions 1 and 2)

3. CACTI AND OTHER SUCCULENTS. 1st, Mrs. Joseph Nuber.
4. DRIED ARIZONA DESERT MATERIAL. 1st, Mrs. Ted Chambers. 2nd, Mrs. Joseph Nuber. 3rd, Barbara C. Hovatter.
5. SOUTHWESTERN THEME. 1st, Mrs. Ted Chambers. 2nd, Isabelle Strandberg.
6. ANY OTHER. 1st, Mrs. Ted Chambers. 2nd, Isabelle Strandberg.

SECTION V, PHOTOGRAPHY, DESERT SUBJECTS

CLASS A, BLACK & WHITE PRINTS. Landscapes: 1st, John Hamay. 2nd and 3rd, Bill Woodward. Plants: 1st, 2nd and 3rd, Agnes M. Holst. 4th, John Hamay. Wildlife: 1st and 2nd, John H. Walter.

CLASS B, COLOR PRINTS. Landscapes: 1st and 2nd, Walter J. Groll, Sr. 3rd, Bill Williams. Plants: 1st, Ken Speer. 2nd and 4th, Charles Merbs. 3rd, Kenneth Orletsky. Wildlife: 1st, Walter J. Groll, Sr.

CLASS C. TRANSPARENCIES. Landscapes: 1st, D. O'Rourke. 2nd and 4th, Genevieve

Tavan School students made (logically) a teddy bear out of "teddy bear" cholla.

Dish garden of cacti and other succulents, Stan Sieracki's striking entry.

Evans. 3rd, Bruce Most. Plants: 1st and 2nd, Olivine Cochrane. 3rd, D. O'Rourke. 4th, Alois Maag. Wildlife: 1st, Ken Kingsley. 2nd and 3rd, John Walter. 4th, Agnes M. Holst.

SECTION VI, ARTS, DESERT SUBJECTS

CLASS A, OIL PAINTINGS. Flower: 1st, Bernardine Bowen. 2nd, A. C. Hays. 3rd, Ruth Mountain. Landscape: 1st and 3rd, Zoraida Twitty. 2nd, Rena Norveil. Indian Theme: 1st, Ruth Mountain.

CLASS B, WATERCOLORS. Flower: 1st and 3rd, Maryl Henes. 2nd, Lucile Taylor. 4th, Ruth Blomeyer. Landscape: 1st and 3rd, Ruth Blomeyer. 2nd, Zoraida Twitty. Wildlife: 1st, Maryl Henes. 2nd, Isabelle Holt. Indian theme: 1st, Virginia Lee Boeger. 2nd, Grace Schoonover. 3rd, Mabel Rooney Cahill.

CLASS C, PENCIL. 1st and 2nd, Barbara Hovatter. 3rd, Jennie Blomeyer. INK. 1st and 3rd, Margaret Kurzius. 2nd, Barbara C. Hovatter.

CLASS D, GRAPHICS. (no awards)

CLASS E, OTHER MEDIA. 1st, Lorraine Jones. 2nd, E. A. Harold. 3rd, J. V. Parker. 4th, Eleanor Groschke.

CLASS F, SCULPTURE. 1st, Kenneth C. Balcomb. 2nd, Judy Smith.

CLASS G, CRAFTS. 1st and 2nd, Ellen Oonk. 3rd, Judy Smith.

CLASS H, NATURAL DESERT WOODS. 1st, Kenneth C. Balcomb. 2nd, Barbara Hovatter. 3rd, Emma Oscarson.

NOTE: This year the Junior Entries, because of their variety, were not judged competitively. Instead, individual Certificates of Aprreciation were given to each youngster or school group who exhibited in the Show.

Prize-winning terrarium, with cacti, succulents and handsome rocks was entered in the Show by Fran Tolleson.

GARDEN ACTIVITIES

MARCH

Sat.	2nd	FIELD TRIP—First Water Ranch	8:30 A.M.
Tues.	5th	CACTOMANIACS "Cacti Spines"—Robert Moulis	8:00 P.M.
Wed.	6th	CLASS—Desert Plants	3:00 P.M.
Thurs.	7th	LECTURE—Arizona Trees & Shrubs	3:00 P.M.
Wed.	13th	CLASS—Succulent Plants	3:00 P.M.
Thurs.	14th	LECTURE—Arizona Birds & Animals	3:00 P.M.
Wed.	20th	CLASS—Culture of Succulent Plants	3:00 P.M.
Thurs.	21st	LECTURE—Arizona Scenics	3:00 P.M.
Wed.	27th	CLASS—Desert Trees & Shrubs	3:00 P.M.
Thurs.	28th	LECTURE—Collecting in Mexico	3:00 P.M.
Sat.	30th	CLASS—Flower Preservation	9:00 A.M.

APRIL

Tues.	2nd	CLASSES—Flower Preservation	9:00 A.M. & 1:00 P.M.
Tues.	2nd	CACTOMANIACS "Herbs"—Mrs. Floyd Betts	8:00 P.M.
Wed.	3rd	CLASS—Culture of Trees & Shrubs	3:00 P.M.
Thurs.	4th	LECTURE—Wildflowers of W. Australia	3:00 P.M.
Sat.	6th	FIELD TRIP—Whitlow Dam	8:30 A.M.
Sat.	6th	CLASS—Flower Preservation	9:00 A.M.
Tues.	9th	CLASSES—Flower Preservation	9:00 A.M. & 1:00 P.M.
Wed.	10th	CLASS DESERT TRIP—Saguaro Lake	8:30 A.M.
Thurs.	11th	LECTURE—Arizona Cacti in Flower	3:00 P.M.
Thurs.	18th	LECTURE—Arizona Wildflowers	3:00 P.M.
Sat.	20th	CLASS—Flower Preservation	9:00 A.M.
Tues.	23rd	CLASSES—Flower Preservation	9:00 A.M. & 1:00 P.M.
Thurs.	25th	LECTURE—Arizona Trees & Shrubs	3:00 P.M.
Sat.	27th	CLASS—Flower Preservation	9:00 A.M.
Tues.	30th	CLASSES—Flower Preservation	9:00 A.M. & 1:00 P.M.

SAGUARO LAND BULLETIN

DESERT BOTANICAL GARDEN of ARIZONA

Vol. XXVIII April, 1974 No. 4

REG MANNING

SAGUAROLAND BULLETIN

Published and owned by the Arizona Cactus and Native Flora Society, sponsors of the Desert Botanical Garden of Arizona, P.O. Box 5415, Phoenix 85010. Saguaroland Bulletin attempts to promote the Garden and to provide information on the desert plants and their culture. Subscription $5.00 per year, the subscription including active membership in the Society and the Desert Botanical Garden. Issued 10 times a year.

W. HUBERT EARLE, Editor
LILLIAN DIVEN, Associate Editor

Vol. XXVIII | April, 1974 | No. 4

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Table of Contents

Editor's Notes 39
Arizona Cactus, *Mammillaria microcarpa* 40
American Bistort, *Polygonum bistortoides* 41
Aspects of the Desert 43
Mexican Cactus, *Coryphantha poselgeriana* 44
Grass Acacia, *Acacia restiaceae* 45
Field Trip Reports 46
Garden Activities 48

COVER: Pink flower of *Coryphantha poselgeriana* (see p. 44)

Desert Botanical Garden of Arizona

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Garden Open Daily 9 A.M. - 5 P.M. Including Holidays

Editor's Notes

The great difference a small (to non-Arizonans) amount of rain makes to us in the desert is very clear when you compare the two following paragraphs written for this issue's Editor's Notes.

(1) On March 7th we wrote: April is usually the month when you drive or hike in the desert looking for the ever-colorful wildflowers. This year has been a very dry winter, some say the driest in 120 years of rainfall record-keeping, and as a result the wildflowers display will be as disappointing as last year's was lavish. This lack of springtime beauty may in some degree console those persons whose travels are restricted by the gasoline shortage. We live in hope that next year will again see "the desert in bloom".

(2) BUT we had .30 inches of rain on March 8th, and a slow overnight soaking rain of .73 inches on March 20th, so here is our current prediction: The two rains (which totaled 1.03 in. at the Garden but over 1½ in. elsewhere) were quite general, covering most of central Arizona's deserts and foothills. The slow soaking we got on March 20th was particularly important, much better for plants than a cloudburst that runs off the surface quickly. Now the sparsely-blooming and the trying-to-flower plants will be rejuvenated, the desert will have something close to a normal wildflower display, and the foothills, where the rainfall total was somewhat higher, may even show a few sheets of color.

Friends from coastal states sometimes laugh at our interest in one measly inch of rain, but now you know how much it means to us.

During the early part of this year we have received a good many $25 to $100 contributions. Sometimes the givers said "use as you see fit", and other times they have designated specific uses: for binding library books, introducing new plants, general upkeep of grounds, and additions to memorial funds. We thank these kind contributors for their generosity.

The Garden is also the recipient of a $5000 Certificate of Deposit which will be redeemable at maximum interest in two years. The gift is a memorial to the late William Z. Smith, Jr., prominent as a Phoenix architect from 1944 to 1967, and was given by his wife, Lucille. It will be used to increase our desert plantings.

Enclosed with this issue of the Bulletin is a ballot on a returnable postcard, which I hope you will check. Incumbent Board Members are up for reelection for the next three years. You will also find space for "write-in" candidates. Be sure you mail your ballot so that it reaches the Garden by May 4th. The date of the Annual Members' Meeting is Sunday, May 5th, and the meeting will be held here at three o'clock in the Richter Memorial Library. We urge all Members to attend the meeting and hear the reports of the past year's progress and on our plans for 1974-75.

Arizona Cactus

FISHHOOK
Mammillaria microcarpa
Cactaceae

This little cactus has the daintiest flowers of all the Arizona species. When you see it with its full circle of small dark pink flowers on the crown, you have been treated to another of nature's small wonders.

Less attractive are its tenacious hooked spines which give it the common name of Fishhook Cactus. Perhaps that should be changed to "Wait-a-minute Cactus", because it takes a little time to detach yourself from the innumerable spines if you accidentally come in too close contact.

It was first collected on Emory's military reconnaissance and described by Dr. Georg Engelmann in 1848 as **Mammillaria microcarpa**, which is its current name though it has had five synonyms in the past 126 years.

The plant is globose to cylindrical, simple or budding at the base or the middle of the stem, mostly cespitose but also in small clusters up to 12 cm high, with each plant 5 cm in diameter. The tubercles are small, and when old lose their spines and become corky. The 15-30 thin radial spines are 6-12 mm long, and are straight, rigid, and white with dark tips. Their spreading growth habit shades the body of the plant. There are one to three central spines, sometimes black, 18 mm long, slender and strongly hooked.

The flowers that form a circle near the top of the plant are two to two and a half cm long, broadly funnel-shaped. The outer petals are oval, obtuse and fringed. The style is red and longer than the white stamens. Stigma lobes are 7 or 8, linear, green. Fruit is clavate, 2-2.5 cm long, scarlet, edible, about 1 mm in diameter, having black, shining, pitted seeds.

These plants are found under bushes, away from the sun's hot rays. They are found growing in loose, well-drained soils, from 1000 ft. up to 4500 ft. They flower several times through the summer.

Type locality: "On the Gila (River), 3000-4000 ft. elevation."

Distribution: Southwest Texas and Chihuahua to Arizona and Sonora. Reported from southern California and southern Utah.

The rich pink petals of a *Mammillaria microcarpa* flower are edged in white.

REFERENCES:
Borg, Cacti
Britton & Rose, Cactaceae
Earle, Cacti of the Southwest
Kearney & Peebles, Flowering Plants and Ferns of Arizona

—WHE

Arizona Wildflower

AMERICAN BISTORT
Polygonum bistortoides

Polygonaceae
Buckwheat Family

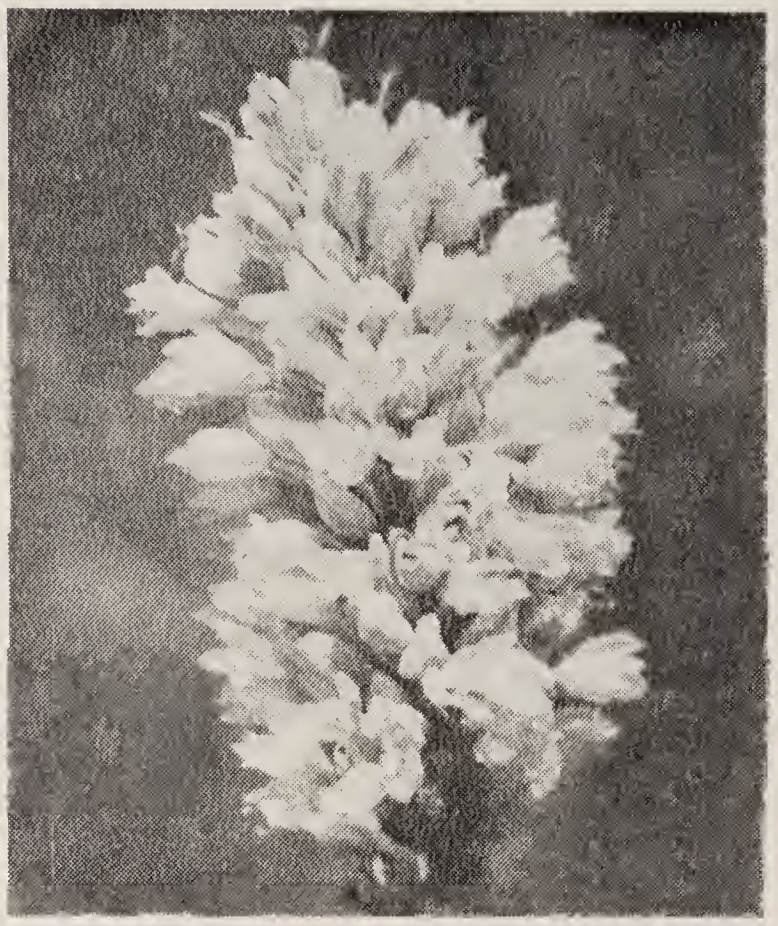
If you're planning to go to Arizona's White Mountains for next summer's vacation (that is, if you can get gas) you'll find yourself there at the height of the wildflower season, some four months later than our desert flowering. Two of the most striking mountain wildflowers are the brilliant skyrocket gilia that attracts crowds of hummingbirds and the waving "cotton tufts" of the white bistort.

One of the most common flowers is subalpine meadows, **Polygonum bistortoides** is also one of the most "satisfying". Now, "satisfying" is a word that botanists would scorn — properly. But to the amateur flower-watcher there are certain wildflowers that can't be remembered without a feeling of pleasure. Some of them are fragile little things you first saw in a harsh, super-dry desert location, some stick in your memory because you came across them blooming exuberantly in an unexpected place, and some — this is the most subjective, hard-to-describe reason — just "look right".

Bistort "looks right" when you see its two-inch-long white cottony flower heads on long slender stems swaying in the nearly constant breezes of Arizona's high country. In subalpine areas it just manages to overtop most of the other wildflowers, but in the tundra, or the alpine zone, where the elevation is more than 11,000 ft., the conspicuous heads occupy a layer above the rest of the ground-hugging flora.

Like a tuft of cotton from a distance, the flower head is in reality a compact oval or

This photograph was taken in Arizona's White Mountains, on Route 273, where the elevation was 8900 feet.



A close view of the flowering head of American Bistort, *P. bistortoides*.

cylindrical cluster of small white or pinkish flowers. The buds are pink, and the heads in which the flowers have not yet come out look as if they were made of pink beads. The flowers have a honeylike scent.

There is a single slender stem, ten to thirty inches tall, with roughly oblong basal leaves that are from four to ten inches long on long petioles. There are only a few sheathing leaves on the stem, three to five inches long and about a half-inch wide.

Another common name, Knotweed, refers to the nodes on the stem where the leaves form. They give the stem a sort of resemblance to a knotted cord or a jointed fishing pole.

Some Indian tribes are reported to have fought wars over the right to live in an area where Bistort was abundant, since it formed a notable and highly esteemed part of their diet.

Harrington (see below), who has given a personal taste-test to each plant he writes about, says the young leaves can be used as potherbs. The rootstocks, which the Indians used, and which are borne shallowly in the ground, are pleasant-tasting when eaten raw, and have no bitter aftertaste. Boiled, they have a pleasant starchy taste and a texture something like water chesnuts, and baked they are excellent, with a sweet nutty taste.

Bistort is found from British Columbia and Montana in the north to New Mexico, Arizona and California in the south. In Arizona it grows at elevations of 8500 ft. and higher in Apache, Coconino, Greenlee and Graham counties. Flowering in between June and September. The plants photographed here were found in early August in the White Mountains near Maverick, at an elevation of 8900 ft.

REFERENCES:
Armstrong, Field Book of Western Wild Flowers
Harrington, Edible Native Plants of the Rocky Mountains
Kearney & Peebles, Arizona Flora
Nelson, Handbook of Rocky Mountain Plants

—LD

HELP WANTED

Typists. Erratic hours, dull jobs, no pay. The Garden could really use the help of two or three kind volunteers on whom we can call occasionally when we need a few hours of typing done. How about you? Phone us at 947-2800 and say yes!

HELP WANTED

Do you know anyone who has had some **library experience** and now has a little time to help our librarian, Peg Gill, on a regular basis? Peg now has two volunteers working with her, but would welcome another assistant, some time after July first, to work on cataloguing the separata. 947-2800 is the number to call.

Vulture Peak in northwest Maricopa County is a bald, rough volcanic peak rising from the saguaro-and-creosote-bush desert. Some stories say that Henry Wickenburg was led to the rich Vulture gold mine nearby by an obliging vulture ("turkey buzzard"), but we rather doubt the truth of that.

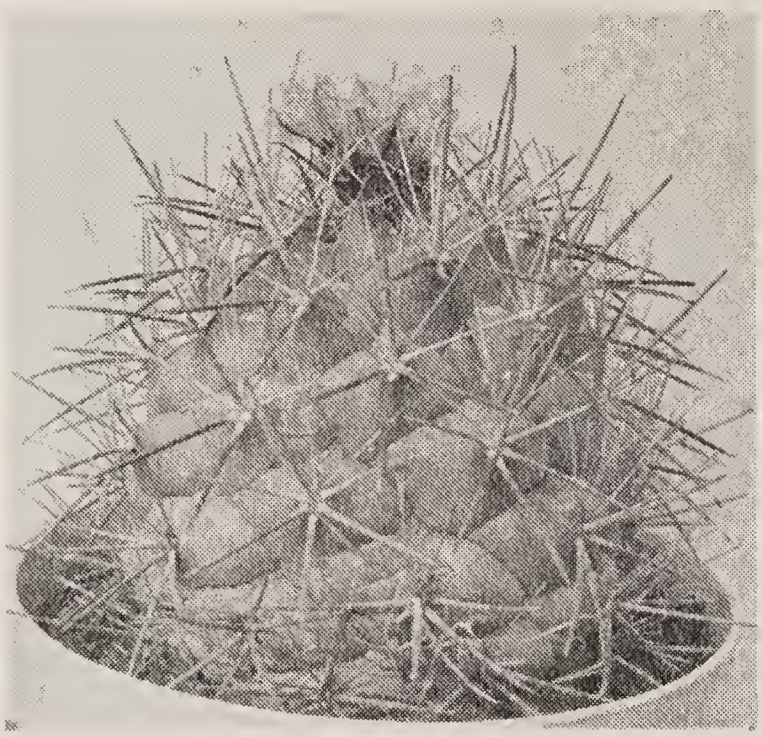
Mexican Cactus

Coryphantha poselgeriana

Cactaceae

This bluish-green small barrel was first described as **Echinocactus poselgerianus** by Dietrich in 1851. Poselger described it in 1853 as **Echinocactus saltillensis,** then later the same year as **Echinocactus salinensis.** In 1908 Quehl named it **Mammillaria difficilis.** In 1911 J. A. Purpus named it **Mammillaria valida.** Britton & Rose in 1923 placed it in the genus Coryphantha, using the specific name **poselgeriana** which had precedence.

The plant is dome-shaped, coming to a point at the top, and is large for a Coryphantha. It has a bluish-gray body and connivent (converging) spines. The younger plants do not always show the typical connivent spines, and possibly because of this there has been confusion in assigning the cactus to its correct genus.



A plant from the Garden's collection, this specimen is about 7 inches high.

Tubercles are wide (4 cm) and short, each having a groove on its upper surface, filled with a small amount of wool, and a bright red gland at the base.

There are five to seven radial spines, stiff, three to five cm long, curved backward and swollen at the base. Color range includes grayish, slightly reddish-brown, to black. The one central spine is obliquely erect, straight or arching, and four to five cm long. Flowers, four to five cm long and as wide, are usually a light pink with a purplish center. The spatulate petals are edged with crenations and have a luminous sheen. The flower remains open for several days. It is followed by a large oblong fleshy green fruit, 1 cm wide and 2 cm long. Seeds are 4 mm long, brownish, and flattened.

This is an easy plant to cultivate if you procure an adult plant. The juvenile plants do not seem to enjoy movement from their native settings. Plants grown from seed can be transplanted easily.

Type locality: Near Saltillo, Mexico.
Distribution: States of Nuevo Leon, Coahuila and Zacatecas.

REFERENCES

Borg, Cacti
Bravo, Las Cacteceas de Mexico
Brittor & Rose, Cacteceae

—WHE

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Five or six warm-hearted outgoing volunteers who have a reasonably close acquaintance with simple arithmetic. Our Gift and Book Shop needs you to come in for half a day each week to help handle sales (that's where the arithmetic comes in) and make Garden visitors feel welcome. Our present shop volunteers will tell you what a pleasant way this is to spend a morning or an afternoon. Call the Garden at 947-2800.

Desert Trees and Shrubs

GRASS ACACIA
Acacia restiacea Bentham

Leguminosae
Pea Family

This is another plant native to Australia. From south and central Western Australia, it is found in the drainages of the Swan, Preston and Murchison Rivers.

As the common name implies, this plant has some resemblance to grasses. It is a small rushlike shrub to 3 ft. wide and as tall. The stems are green, striate and glabrous (without hairs). The stems appear leafless, but new growth has alternate scale like leaves on the stems. These, however, are soon deciduous. Twenty to thirty bright chrome yellow, 5-merous (flower parts numbering 5 each) flowers occur in each of the 4 to 8 globose heads. The calyx is small and irregular. The

Resemblance to a grass spike is clear from this photo of an unopened bud.

petals are smooth. The heads occur in bracteate racemes which, before they expand, look very much like grass spikelets since the bracts are tightly imbricated or overlapped. Two locally abundant grasses in Arizona which exhibit this characteristic are **Bromus arizonicus** (Shear) Stebbins and **Festuca octoflora** Walt. As the inflorescence expands these bracts fall and may be found in the litter at the base of the plant. The fruit is a linear apically-dehiscent legume. It becomes slightly woody as it matures.

The name Acacia is of Greek origin. It refers to a thorny tree of Egypt, **Acacia arabica** Willd. The specific epithet **restiacea** is an adjective form of the Latin word for rope. This name however, was taken from the type genus of the plant family Restionaceae, not because of any resemblance to or use of this plant as rope but because the genus **Restio** L. has, as an inflorescence, many flowered spikelets within imbricated bracts. Lehman once proposed the new genus **Clithonanthus** Lehman for **Acacia restiacea** Bentham,

This past spring *A. restiacea* flowered vigorously here at the Garden.

based on the occurence of the imbricate bracts. The new genus was, however, abandoned by taxonomists because similar bracts also occur in **A. squamata** Lindl. and **A. suaveolens Willd.** which differ widely in other characteristics.

The plant pictured here was planted in 1970 as a seedling. It is now mature and flowered prolifically in February and March. It is attractive all year but the sudden explosion of flowers is an extra. It is drought-resistant, hardy, and takes full sun. We have observed no insect pests. It should prove ideal in low-maintenance areas such as parking lot medians. It can be grown in informal low hedges or as tall ground covers. It could be tried as an erosion controller on slopes. The wiry stems take considerable abuse in heavy-traffic situations. In addition, it has never been molested by the rodents which attack many plants here in the garden. Propagation is by seed.

REFERENCES:

Bentham, **Flora Australensis**
Isely, **Leguminosae of the United States**

—RGE

FIELD TRIP REPORTS

On February 13th a class field trip from the Garden to Vista Lookout consisted of Rodney Engard, leader, and nineteen class members and guests. Because of this winter's extreme dryness, very little flowering was expected, but some was noted, and the **Thamnosma montana** was the highlight of the trip. The following notes were compiled by Mary Getz.

At the Salt River bottom near the dump:

1. **Hymenoclea salsola**, Burro-bush. Lvs were small curling tendrils, little dried flwrs. Compositae.
2. **Bebbia juncea**. Shrub, yellow flwr. Compositae.
3. **Tragopogon porrifolius**, Wild Salsify or Oyster Plant. Special edible root. Compositae.
4. **Oenothera (deltoides?)**, Evening Primrose. Not sure of species. Not in bloom. Onagraceae.
5. **Mentzelia** sp., Stick-leaf. Fragments of lvs and stems stick readily to clothing and to hair of animals. Rough capsule all we saw, but has large yellow flwr with white stamens. Loasaceae.
6. **Prosopis juliflora**, Mesquite. Sap used by Indians to coat pottery and for chewing gum and as a black dye. Leguminosae.
7. **Erigeron canadensis**, Horseweed. Grows to 5-10 ft. tall. (Erigeron, fleabane, wilddaisy genus). Compositae.
8. **Salsola kali**, Tumbleweed, Russian Thistle. Eaten by Hopis' sheep. Chenopodiaceae.
9. **Petalonyx thurberi**, Sandpaper-plant. Really rough. Loasaceae.

At the Grand Canal along Beeline Highway:

10. **Sisymbrium irio**, the mustard that's blooming all around town, too. Fruit is a silicle. Cruciferae.
11. **Erodium cicutarium**, Filaree, Heron-bill. Extensively naturalized in U. S., from Europe, little purple flwrs, all over the ground. Geraniaceae. (**E. texanum** is the native heron-bill.)
12. **Lupinus concinnus**, hairy little lvs. not in bloom. Leguminosae.
13. **Asclepias subulata**, Milkweed. Sap contains an appreciable quantity of rubber. Asclepiadaceae.
14. **Aplopappus gracilis**, Jimmyweed, the most common one. Compositae.
15. **Amsinckia intermedia**, Fiddleneck, yellow scorpioid flwr, in bloom. Boraginaceae.
16. **Olneya tesota**, Ironwood, 2 spines at base of each lf. Leguminosae.
17. **Sphaeralcea ambigua**, Globe-mallow, in bloom. Malvaceae.

Along Beeline Highway before Saguaro Lake turnoff:

18. **Condalia lycioides**, Graythorn, some

with good sized lvs. Rhamnaceae.
19. **Krameria grayi**, White Ratany, pink dye from roots, used for medicinal purposes. Just put into its own family; distinctive fruit with barbed spines. Krameriaceae.
20. **Phoradendron californicum**, Mistletoe, found in many trees. Loranthaceae.
21. **Ephedra nevadensis**, Mormon Tea. Ephedraceae.
22. **Clematis drummondi**, found in a tree. Ranunculaceae.
23. **Baileya multiradiata**, Desert-marigold, quite a few in bloom along roadside. Compositae.
24. **Calliandra eriophylla**, Fairy-duster, False-mesquite. A few blooms. Leguminosae.
25. **Stephanomeria** sp., not in bloom. Compositae.
26. **Ambrosia dumosa**, Desert Bursage (the most xeric bursage). Compositae.
27. **Ferocactus acanthodes**, Compass Barrel. Cactaceae.
28. **Erioneuron pulchellum**, Fluff Grass. Gramineae.
29. **Hoffmannseggia microphylla**, Hog-potato. Leguminosae.
30. **Encelia farinosa**, Brittlebush, clear yellow sap at the nodes is very inflammable and is used as incense. Compositae.

At Saguaro Lake turnoff:
31. **Acacia constricta**, White Thorn Acacia, the tips of the branches quite red. Leguminosae.
32. **Canotia holacantha**, Crucifixion Thorn. Celastraceae.
33. **Opuntia bigelovii**, bottom of cactus was black because sugar oozed out when had lots of rain, and oxidized. Cactaceae.
34. **Thamnosma montana**, Turpentine-broom, full of deep purple flwrs, collected some seed. Rutaceae.
35. **Psilostrophe cooperi**, Paperflower, Paper Daisy. Compositae.
36. **Mammillaria microcarpa**, quite firm when push it, fruit orange to scarlet. Cactaceae.
37. **Mammillaria tetrancistra**, quite flabby when push it, bright red club fruit. Cactaceae.
38. **Lycium** sp., Tomatillo, 3 lvs and flwr come out at one spot, berries used for taco sauce. Solanaceae.
39. **Silene antirrhina**, Sleepy Catchfly, has a dry capsule that you see all over, tacky stem. Caryophyllaceae.
40. **Yucca baccata**, Banana Yucca, lvs used for ropes, nets and baskets. Agavaceae.
41. **Dichelostemma pulchellum**, Bluedicks, lots of them all over the ground. Liliaceae.

At Vista Lookout:
42. **Eriogonum fasciculatum**, a red-topped buckwheat. Polygonaceae.

At Sugarloaf Mountain:
43. **Anemone tuberosa**, our earliest-flowering. Ranunculaceae. Most of the prickly pears here had cochineal on them. White cottony tents made by a red mite. These mites have been used for dyes.

Backpack into Superstition Mtns. on March 2 and 3.

First Water area:
1. **Aplopappus laricifolius** — Turpentine-brush, very common. Compositae.
2. **Castilleja** sp. — Paintbrush, red portions are bracts not flwrs. Scrophulariaceae.
3. **Erodium cicutarium** — Filaree, in bloom and fruit. Geraniaceae.
4. **Marah gilensis** — Wild-cucumber, vine. Cucurbitaceae.
5. **Dodonaea viscosa** — Hopbush. Sapindaceae.
6. **Plantago insularis** — Indian wheat, white fuzzy flrws. Plantaginaceae.

Second Water area:
7. **Dichelostemma pulchella** — Bluedicks, Desert-hyacinth. Liliaceae.
8. **Viguiera deltoidea** — triangular lvs. Compositae.

9. **Ambrosia ambrosioides** — Giant bursage, full bloom. Compositae.
10. **Salvia columbariae** — Chia, lovely blue flrw. Labiatae.
11. **Erigeron** sp. — Fleabane. Compositae.
12. **Amsonia palmeri** — tubular flwrs in heads. Apocynaceae.
13. **Ambrosia deltoidea** — Triangle-leaf bursage. Compositae.
14. **Gilia flavocincta** — small plant with purple flwrs. Polemoniaceae.
15. **Lupinus sparsiflorus** — Lupine. Bluebonnet. Leguminosae.
16. **Lupinus succulentus**—Lupine, a broad-lfd species with smaller flwrs. Leguminosae.
17. **Oenothera leptocarpa** — yellow flwrs. Onagraceae.
18. **Mirabilis bigelovii** — deltoid lvs, in bud. Nyctaginaceae.
19. **Phacelia crenulata** — Scorpionweed. Hydrophyllaceae.
20. **Calliandra eriophylla** — Fairyduster, blooming. Leguminosae.

Lower La Barge Box:

21. **Mimulus guttatus** — Monkey-flower, Miner's lettuce, found along stream, used in salads. Scrophulariaceae.
22. **Orthocarpus purpurascens** — Owlclover. Scrophulariaceae.
23. **Lesquerella purpurea** — Bladderpod, purple flwrs. Cruciferae.
24. **Lesquerella gordoni** — Bead-pod, Bladderpod, yellow flwrs. Cruciferae.
25. **Veronica anagallis-aquatica** — Water speedwell, found along stream. Scrophulariaceae.
26. **Euphorbia albomarginata** — Rattlesnake-weed, distinctive white bracts. Euphorbiaceae.
27. **Penstemon (eatoni?)** — Beardtongue, scarlet flwrs. Scrophulariaceae.

Boulder Creek area:

28. **Monoptilon bellioides** — Desert-star, small plant, white ray flwrs, yellow disk flwrs, pubescent lvs. Compositae.
29. **Eschscholtzia mexicana** — Gold-poppy, found very few. Papaveraceae.
30. **Lotus rigidus** — Desert rock-pea, large clumps in flwr and fruit. Leguminosae.

Charlebois Trail:

31. **Sphaeralcea (emoryi?)** — Sore-eye poppy, flwrs redder than those around Phoenix. Malvaceae.
32. **Vauquelinia californica** — Arizona rose wood. Rosaceae.

—MG

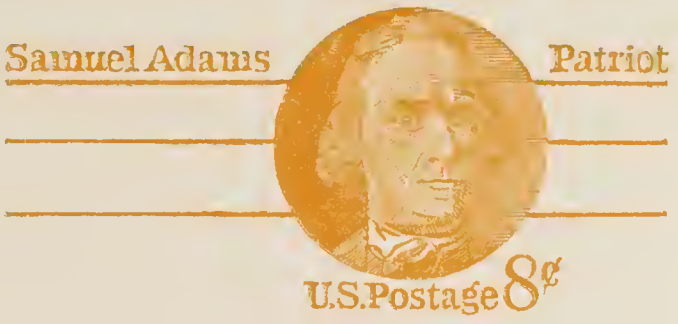
GARDEN ACTIVITIES

APRIL

Tues.	2nd	CLASSES—Flower Preservation	9:00 A.M. & 1:00 P.M.
Tues.	2nd	CACTOMANIACS "Herbs"—Mrs. Floyd Betts	8:00 P.M.
Wed.	3rd	CLASS—Culture of Trees & Shrubs	3:00 P.M.
Thurs.	4th	LECTURE—Wildflowers of W. Australia	3:00 P.M.
Sat.	6th	FIELD TRIP—Whitlow Dam	8:30 A.M.
Sat.	6th	CLASS—Flower Preservation	9:00 A.M.
Tues.	9th	CLASSES—Flower Preservation	9:00 A.M. & 1:00 P.M.
Wed.	10th	CLASS DESERT TRIP—Saguaro Lake	8:30 A.M.
Thurs.	11th	LECTURE—Arizona Cacti in Flower	3:00 P.M.
Thurs.	18th	LECTURE—Arizona Wildflowers	3:00 P.M.
Sat.	20th	CLASS—Flower Preservation	9:00 A.M.
Tues.	23rd	CLASSES—Flower Preservation	9:00 A.M. & 1:00 P.M.
Thurs.	25th	LECTURE—Arizona Trees & Shrubs	3:00 P.M.
Sat.	27th	CLASS—Flower Preservation	9:00 A.M.
Tues.	30th	CLASSES—Flower Preservation	9:00 A.M. & 1:00 P.M.

MAY

Sat.	4th	FIELD TRIP—Sugar Loaf Mountain	8:30 A.M.
Sun.	5th	ANNUAL MEMBERS' MEETING	3:00 P.M.
Tues.	7th	CACTOMANIACS—Potluck Supper	6:30 P.M.



THE DESERT BOTANICAL GARDEN
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4-74

ARIZONA CACTUS & NATIVE FLORA SOCIETY, INC.

THE DESERT BOTANICAL GARDEN

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Use these lines for 'write-ins':

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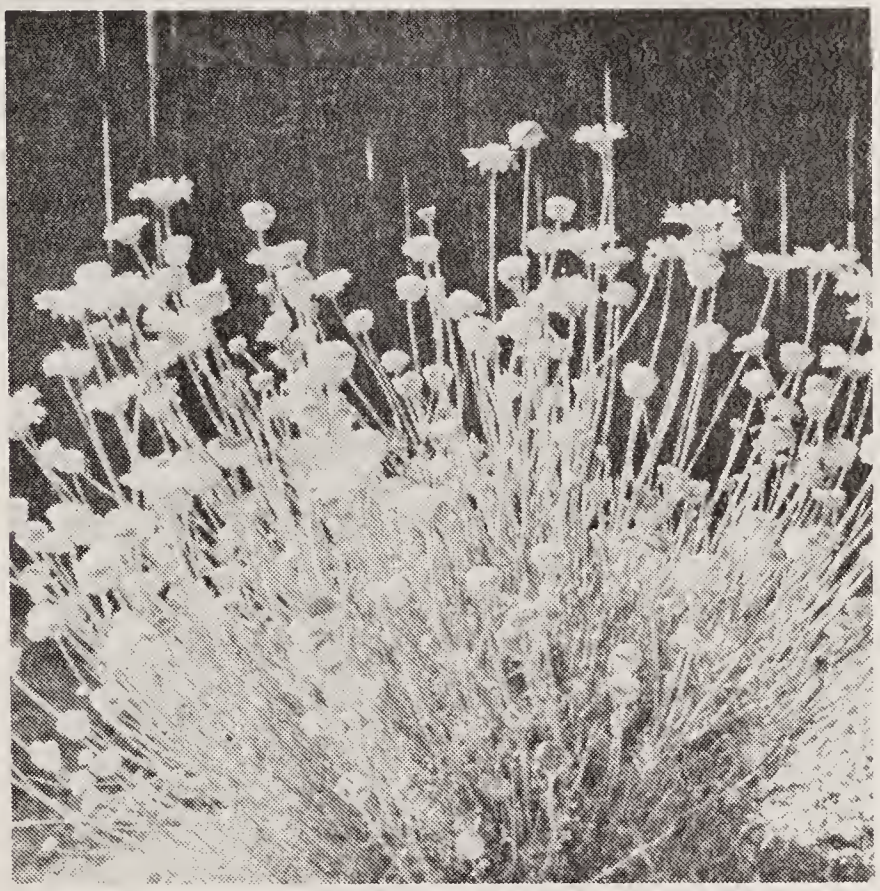
SAGUARO LAND BULLETIN

DESERT BOTANICAL GARDEN of ARIZONA

Vol. XXVIII May, 1974 No. 5



DESERT MARIGOLD, THE STAR OF
A VERY DRY DESERT SPRINGTIME

(See page 60)

REG MANNING

SAGUAROLAND BULLETIN

Published and owned by the Arizona Cactus and Native Flora Society, sponsors of the Desert Botanical Garden of Arizona, P.O. Box 5415, Phoenix 85010. Saguaroland Bulletin attempts to promote the Garden and to provide information on the desert plants and their culture. Subscription $5.00 per year, the subscription including active membership in the Society and the Desert Botanical Garden. Issued 10 times a year.

W. HUBERT EARLE, Editor
LILLIAN DIVEN, Associate Editor

Vol. XXVIII | May, 1974 | No. 5

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Table of Contents

Editor's Notes 51
Agave deserti, a Four-State Resource 52
Field Trip Notes 54
Aspects of the Desert 55
Silvery Cassia for Color 56
Four Different Palo Verdes 58
Desert Marigold, *Baileya multiradiata* 60
Garden Activities 60

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Editor's Notes

The Federal Highway Administration announced on March 2nd "Operation Wildflower", an excellent plan to promote the use of native wildflowers and shrubs along highways built with federal funds. The Administration will work together with the state highway departments and the National Council of State Garden Clubs. Not just any wildflower will qualify for use in the program. According to the announcement, "Factors involved in the selection of species would include their appropriateness to the area, whether they are indigenous to the locale, and their ability to adapt to the climate and environment".

Planting wildflowers (as opposed to the planting of horticultural species) has its special problems. Seeds of wildflowers can wait many years in their native areas until the proper combination of conditions for germination occur. To plant seeds where the necessary conditions are not duplicated is a waste of time and money. But a well-researched program will add tremendous variety and beauty to the network of interstate highways all across the country.

The March issue of Western Landscaping News carries an item from Phoenix reporting that a plant study program is being started by the Arizona Highway Dept., funded by a $35,000-yearly grant, to "increase the survival rate of our plantings and to maintain effective erosion control on roadside banks." In addition, experimental work will cover an evaluation of native plants under drought and high-salt conditions, specific uses of native plants, and methods of transplanting native trees.

We certainly hope that the current programs will be successful in increasing the use of native plants. The Garden and the State University horticulturists have worked with and advised the state highway projects in the past, sometimes with frustrating results. Not until a few years ago did the highway dept. provide in their contracts for the continuing watering of planted shrubs and trees. Before that, the practice was to plant the selected desert plants and assume that they would live without additional care. As a result there was a ninety percent loss of all plantings. No attention was paid to warnings that all transplanted plants suffer shock and need moisture. Our dry desert soils act like a sponge and dry out the soil around a transplant unless water is given quite often during the period in which the plant re-establishes itself.

Is there danger ahead for the palm trees in our Arizona gardens? We hope not, but Florida has a problem that could conceivably spread to other semitropical areas of the country. A microplasma has attacked coconut palms with a "lethal yellowing" and has killed over 10,000 of them in Dade County, Florida. It has also spread to other ornamental palms.

The disease has been present in Florida for several years, but has been identified only recently through the use of an electron microscope, since the cause, a

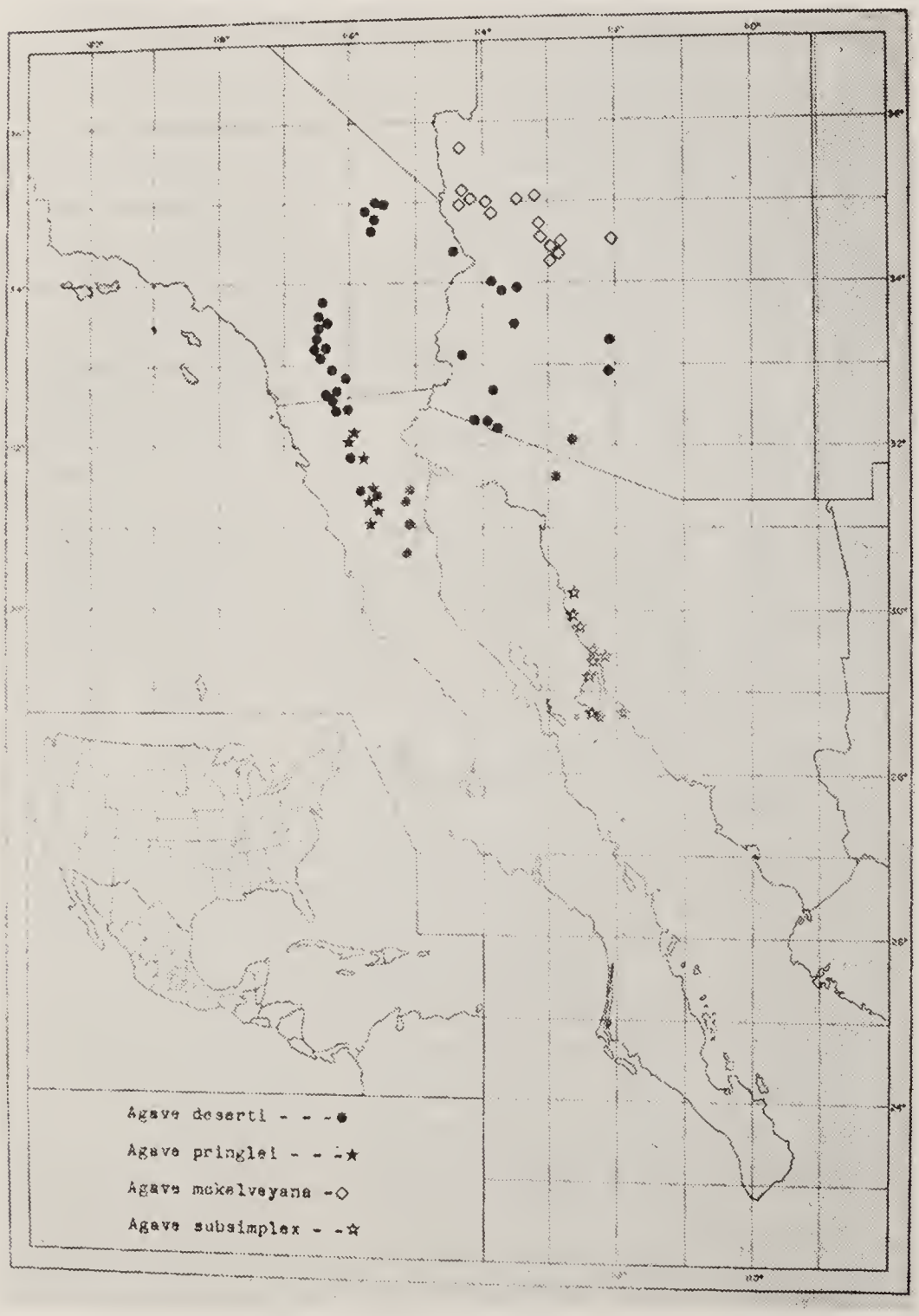
(Continued on page 54)

AGAVE DESERTI, A FOUR-STATE RESOURCE

By Howard S. Gentry

Agave deserti Engelm., which some people may prefer to call the desert century plant, is a gray, tough, succulent, rosette plant with an array of well-armed rigid leaves. Agaves are not cactus, but are a family to themselves, the Agavaceae. **A. deserti** occurs as single rosettes or as clusters which develop from offsets growing out from the base of the seedling mother plant. It is well adapted to desert conditions, because it can wait a long time between rains and with a shallow root system take in water quickly when rain does come. The rather spongy leaf tissue absorbs water gluttonously, the semi-collapsed leaves straightening laterally, bulging where they were hollow before the rain.

We can think of **Agave deserti** as one of the xerophytes sitting around on the desert mountains, like an Indian contemplating the void, wondering about the next rain. If you are a hunter, you will find it here and there, but certainly not everywhere. It is frequently lacking in mountains where it could be expected. If you are a motorist, you will not see it at all in Arizona unless you take some byway leading to the mountains, as on the Harquahala or Harcuvar Mountains, south and north of Wenden respectively.



There is a fine display of **Agave deserti** variation to be observed in California along the "Pines to Palms Highway", route 74, from Desert Center to Idlewild. Along this route one can find plants so glaucous as to be almost white, broad-leaved and narrow-leaved forms, and forms that are nearly or quite toothless. Here also is a bighorn sheep refuge with occasional turnouts, where one can park and with spy glasses look for sheep, or also bring Agave variants into closer view among the craggy rock formations. Another fine locality for desert Agave is along San Felipe Creek in Anza-Borrego State Park along highway 78. In deep sandy soil here are robust rosettes in large dense clones. In May and June after winter-spring rains, there is a lot of showy flowering at both these

Figure 1. A natural stand of wild Agaves in the sandy valley of San Felipe Creek in Anza-Borrego State Park, California.

locations. The bright yellow flowers are blazing light signals attracting birds and insects to the little cups of nectar held in shallow flower tubes.

Agave deserti is among the more edible of the Agaves. The soft white tissue within the short stem, and the soft white bases of the leaves, are sweet when properly cooked. The Indians dug pits in the ground, lined them with stones, and baked the trimmed stems or "heads" for about two days in these pits. The young flowering shoots while still in the "asparagus" stage were also boiled or broiled and eaten. The flowers were eaten as salads or scrambled with eggs, and in other ways. The fruits are bitter and were not eaten. Castetter, Bell, and Grove wrote an excellent account of the uses of Agave by the Indians of the Southwest (1938). Their map of "mescal pits" shows that **A. deserti** was eaten and its fibers used throughout the **deserti** area.

The accompanying map shows the distribution of **Agave deserti** and three other relatives in the section Desertiocolae of the genus **Agave**. This column in ensuing issues will annotate other species, supplying more information on the life

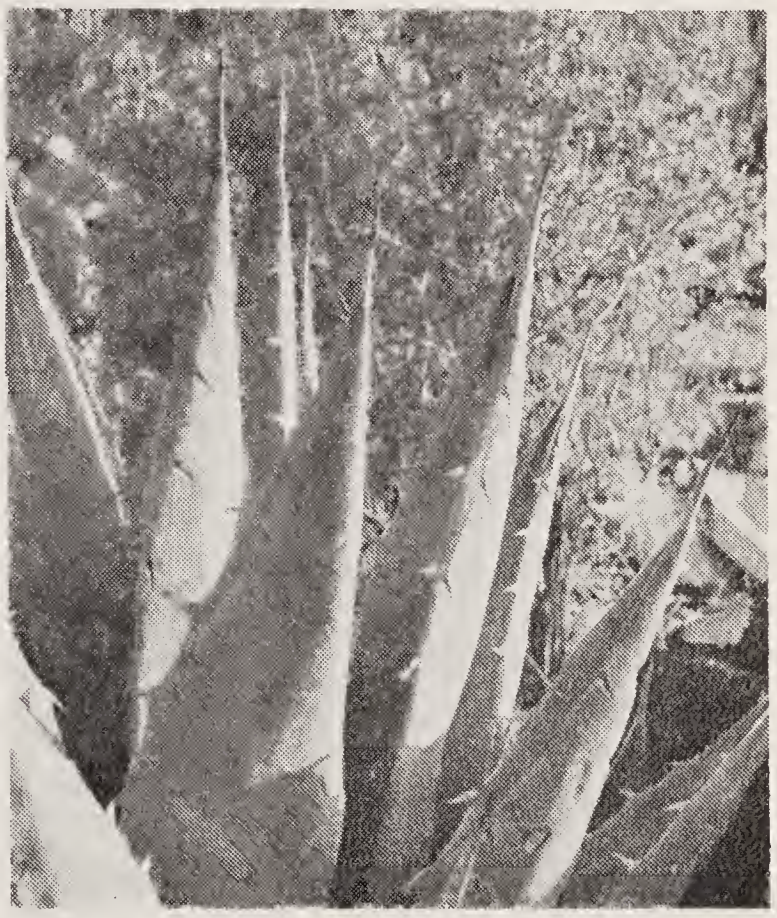


Figure 2. Detail of leaves showing stout form and formidable armature.

histories and uses of this unique American group of plants. They are important sources of food and shelter to wild life and were a sustaining source of starch, amino acids, and sugars for the American Indian during his long history, culminating in the civilizations of such peoples as the Mayas and Aztecs of Mexico.

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Figure 3. An umbel of Agave flowers right at anthesis when the stamens are fully extended.

Editor's Notes—

(Continued from page 51)

microplasma, is much smaller than any bacteria.

Researchers believe the disease is incurable, and will be in Florida from now on, but think that it can be kept under control. A current treatment is the injection of three grams of terramycin into the tree trunk through a hollow quarter-inch screw. The antibiotic, in a water solution, is forced into the tree under pressure, 100 lbs. per sq. inch.

We hope this microplasma does not become established here. It may be that our high desert temperatures will discourage it. Of course, all plants coming into Arizona are inspected at the border by the state Dept. of Agriculture, but there is a chance that the microplasma may enter the state undetected. If you see any kind of palm that shows a high degree of yellowing, contact the Dept. of Agriculture immediately. They have "arrested" many plant-disease invaders, and are on the outlook for any "suspects".

FIELD TRIP NOTES

March 2. First Water Ranch in the Superstitions. Two small areas were explored before proceeding to the luncheon area but flowering was sparse and depauperate in both places. In fact, **Encelia farinosa** (Brittle-Bush) and **Baileya multiradiata** (Desert Marigold) were the only conspicuous blooms seen up to this time in the foray. At the luncheon area a few patches of ground were carpeted with **Baeria chrysostoma** (Goldfields) but again, none of the plants exhibited robust growth. After lunch, the group hiked in the surrounding hills and washes. The most conspicuous flowering plants seen on this hike were **Lesquerella purpurea** (the only purplish Bladder-Pod), **Mirabilis bigelovii** (a pale pink-flowered Four-O'Clock), **Marah gilensis** (Wild-Cucumber) and a few tiny Gilias. A dried flower stalk of last year's **Mimulus** (Monkey-Flower) blooms suggested the possibility of its use in dried-flower arrangements. To recapitulate the results of the afternoon's hike, more

(Continued on page 57)

ASPECTS OF THE DESERT

In the Petrified Forest National Park of northern Arizona and in the adjoining Painted Desert there are large areas of unusual color. The Badlands of Blue Mesa display alternating bands of blue-grey and white, formed fifty million years ago by deposits of sea mud.

SILVERY CASSIA FOR COLOR

Close-up of flowers and leaves of this popular desert garden plant.

A very popular source of winter and early spring color here in central Arizona is Silvery Cassia, also called Feathery Cassia.

Cassia artemisioides is a beautiful silver-gray shrub, bearing a mass of yellow flowers, that is frequently used in landscaped gardens and planted medians.

Its botanical name combines Greek and Latin: **Cassia**, the name of an aromatic shrub, and **artemisioides** meaning "like **Artemesia**, wormwood, being silver-gray in color".

Silvery Cassia was introduced into southern California in the early 1900s from Australia, and brought to Arizona in the 1920s. The late Mrs. (Col.) Dale Bumstead of Tal-Wi-Wi Ranch north of Goodyear, Arizona, planted two Silvery Cassias in 1929, and seedlings from the original plants are still growing at the ranch.

Cassia artemisioides is found in Australia from the eastern states to central Australia, and from Eyre Peninsula to the far noth. Because this plant covers such a wide expanse of territory, variants occur, and there is much confusion in the determination of about four similar species.

Due to the vast range of latitudes, the shrubs flower from winter to spring, June to November in Australia — the Southern Hemisphere equivalent of our December to May.

Silvery Cassia is a bushy shrub whose narrow leaves are covered with short gray hairy down. The leaflets are in three or four pairs. They are stiff, linear, and one-quarter of an inch to an inch long. The sulphur-yellow flowers are close to one inch wide and occur in short, dense axillary clusters near the end of the stem. Seed pods are two to three inches long, flat, and shiny brown. They are often used in dry arrangements by floral decorators.

This is an easy shrub to grow from seeds or cuttings. Many times young seedlings are found under the parent plant and when they are up to six inches tall they can be removed with a trowel after the surrounding soil is first soaked with water. They can then be transplanted directly to another section of your garden or potted in No. 10 cans for later planting. Be sure to protect the young plants from the hot sun for about a month. Plants may be started from seed quite easily, but the seeds must first be scarified — the seed coating filed down to the embryo. Large "canned" plants can be obtained from your local nursery.

Silvery Cassia is quite drought-resistant and can go without water for several months. Pruning should be done after the flowering period is over. New shoots will then grow through the summer and from these will appear the flowers next year.

The beautiful yellow flowers are most welcome in our winter as they fill in the interval before the bedding plants and the wildflowers show their spring colors.

—WHE

raindrops descended on the group than flowers were seen by the group. That's the kind of day it was. Attendance 19. Leaders, Rodney Engard and J. Harry Lehr.

—JHL

On April 6th, 38 Garden members and friends, with Rodney Engard as leader, travelled to Whitlow Dam.

Phoenix to Whitlow Dam: **Baileya multiradiata** (Desert marigold), blooming in large stands along roadside. **Aristida adscensionis,** graceful red grass.

East side of Whitlow Dam: **Rumex hymenosepalus** (Wild-rhubarb), petioles good substitute for rhubarb in pies, possible source of tannin in roots, Polygonaceae. **Bernardia incana,** shrub growing in rocky cliff, Euphorbiaceae. **Nasturtium officinale** (Water-cress), growing in stream, Cruciferae. **Mimulus guttatus** (Monkey-flower), yellow flwrs, sometimes used for salad and greens, Scrophulariaceae. **Nicotiana glauca** (Tree tobacco), poisonous, Solanaceae. **Amsinckia intermedia** (Fiddleneck), yellow scorpioid inflorescence. **Typha latifolia** (Cattail), one small plant, Typhaceae. **Eucrypta** sp., small white flwrs, pubescent lvs, Hydrophyllaceae. **Sonchus** sp., (Sow-thistle), common yard weed. **Datura meteloides** (Jimson-weed), very poisonous, Solanaceae. **Petunia parviflora,** very small flwrs with purple limb and whitish tube, Solanaceae.

West side of Whitlow Dam: **Lotus rigidus** (Desert rock-pea), yellow "pea" flwrs, decoction of lvs and flwrs used as tonic by settlers (Hills-tea). **Krameria grayi** (White ratany), small bushes full of purple flwrs. **Xanthium** sp. "(Porcupine eggs"), oval fruit full of spines. **Eriastrum diffusum,** bright blue flwrs in dense heads with long fine white hairs, Polemoniaceae. **Gilia** sp., blue flwrs, Polemoniaceae. **Mammillaria microcarpa** (Fishhook or Pincushion cactus), pink flwrs. **Echinocereus engelmannii** (Hedgehog cactus), purple flwrs. **Cassia covesii,** yellow flwrs and dried fruits on same plant. **Brickellia** sp., whitish flwrs, deltoid lvs. **Dalea sp.** (Indigo-bush), little flwrs, Leguminosae. **Ayenia pusilla,** flwrs inconspicuous, small round fruit, Sterculiaceae — fam.of cocoa and chocolate. **Eriogonum fasciculatum** (flat-top buckwheat-brush, California buckwheat), pinkish flwrs in dense clusters. **Abutilon pringlei** (Indian-mallow), small yellow flwrs. **Trixis californica,** yellow flwrs, pappus of numerous straw-colored bristles. **Bebbia juncea** (Sweetbush, Chuckawalla's delight), chuckawallas feed greedily on the yellow flwrs.

Queen Creek several miles west of Whitlow Dam: **Cirsium neomexicanum** (New Mexico thistle), lavender flwrs. **Marrubium vulgare** (Horehound), used as confection for checking coughs and easing sore throat, Labiatae. **Nicotiana trigonophylla** (Desert tobacco), white tubular flwrs. **Plantago purshii** (Indian-wheat), long heads. **Eschscholtzia** sp. (California-poppy, Gold-poppy). **Funastrum heterophyllum** (Climbing milkweek), purplish flwrs, found climbing over a fence.

Baccharis glutinosa (Seep-willow) was the dominant shrub along the whole length of Queen Creek, with a sprinkling of **Tamarix pentandra.** Two willows were found on the east side of the dam and none on the west side.

—MG

FLOWER PRESERVERS' PATIO SALE

To clear out their workroom at the end of the season, the Flower Preservers will hold a patio sale here at the Garden's Auditorium Patio on Saturday, May 25th starting at 10 a.m. On sale will be some individual preserved flowers, lots of supplies and dried materials to help you complete your projects. Early birds will also find usable bits of paint, stickum, floral tape, absorptive dyes, paperweights, frames, jewelry makings, flocked paper for backings, and some used but reusable oolitic sand at very, very nice prices.

Four Palo Verdes grow in this area. All have greenish bark, yellow flowers, belong to the Pea Family. Here are hints for telling them apart. **Cercidium floridum,** the Blue Palo Verde (see R and below R), is the first to bloom with bright yellow flowers. New stems are spiny. It's found in the foothills. The bark is a definite blue-green. Both the Blue and the Yellow Palo Verdes are Arizona's "State Tree."

Cercidium microphyllum, the Yellow Palo Verde (L and above L) flowers about a week later than the Blue. The bark is yellowy-green and the flowers are lighter yellow than those of the Blue. One of the petals of this Palo Verde is white, which contributes to the overall pale look. It grows most commonly out on the desert flats. It is not spiny, but the stem tips are pointed.

The Sonoran Palo Verde, **Cercidium praecox** (L and below L), was introduced in this area by our Garden as an improvement over the tree discussed below. It is the last to bloom, with bright yellow flowers that grow all along the branches, like forsythia. It is a smaller tree than the rest, and has more leaves than they. A native of Sonora and Baja California, Mexico, it grows very well in central Arizona.

The largest tree of the four, and the third to bloom is **Parkinsonia aculeata** (R and above R).. It grows very fast, and is often cultivated, but the long leaves make a tremendous amount of litter, and it is usually short-lived, being prey to borers and rot. Its abundant spines grow in a cross-shaped formation, hence its alternative name "Jerusalem Thorn." It grows wild in Arizona south of Tucson.

Arizona Wildflower

DESERT MARIGOLD
Baileya multiradiata
Compositae
Sunflower Family

Baileya multiradiata was named in honor of Jacob Whitman Bailey, an early American microscopist. The species **multiradiata** is translated as "many-rayed". This is the prominent yellow wildflower on our deserts during dry winters and springs, and can also be found in bloom in some places during the summer and early fall. Its sturdiness and abundance is due to the fact that the stems, leaves and flower stalks are covered with minute felt-like hairs that help to retain every bit of moisture in the plant for the production of its lovely display of many large yellow flowers.

Our rainfall last winter and spring brought us only 3.10 inches of moisture (September through March, as compared with 11.30 inches during the same period the previous year), yet that was enough to allow the plant to flower freely along the roadsides, in adjacent fields and on low hillsides. After abundant winter-spring rains, the Desert Marigold is often obscured by the lush, larger plants, but after a dry season there is little or no competition and the plant shows off in all its yellow glory.

The desert Marigold flowers are 1½ to 2 in. wide on a 12-to-15 in. stem. Browsing animals will resort to eating this plant only during a drought, but it contains a toxic substance that can cause death.

You can gather the seeds and scatter them in a flower bed in the fall, rake them in, and let the winter rains germinate them. For continued successful growth, **do not water**, but let the available rains give them their needed moisture. We have seen too many Desert Marigold plants die from overwatering.

REFERENCES:

Jaeger, Desert Wild Flowers
Kearney & Peebles, Arizona Flora

——WHE

Desert Marigold is often seen along the driest desert highways.

As this issue goes to press, we have just learned with sorrow of the death of Charles Mieg. Charlie was an enthusiastic member of the Garden's Board of Directors for 20 years, "Chief Cactomaniac," and a warmly admired friend of the Garden and every member of this staff.

The next issue of the Bulletin will carry a more detailed article about his long association with the Garden.

SAGUARO LAND BULLETIN

DESERT BOTANICAL GARDEN of ARIZONA

VOL. XXVIII June-July, 1974 No. 6

GOLDEN-FLOWERED AGAVE

(See page 71)

REG MANNING

SAGUAROLAND BULLETIN

Published and owned by the Arizona Cactus and Native Flora Society, sponsors of the Desert Botanical Garden of Arizona, P.O. Box 5415, Phoenix 85010. Saguaroland Bulletin attempts to promote the Garden and to provide information to the desert plants and their culture. Subscription $5.00 per year, the subscription including active membership in the Society and the Desert Botanical Garden. Issued 10 times a year.

W. HUBERT EARLE, Editor
LILLIAN DIVEN, Associate Editor

Vol. XXVIII | June-July, 1974 | No. 6

Arizona Cactus and Native Flora Society

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Table of Contents

Editor's Notes 63
Annual Meetings 64
In Memoriam: Charles E. Mieg 65
Aspects of the Desert 67
Financial Report 68
The Golden Flowered Agave, *A. chrysantha* 71

Desert Botanical Garden of Arizona

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Garden Open Daily 9 A.M.-5 P.M. Including Holidays

Editor's Notes

Our fiscal year from May 1, 1973 to April 30, 1974 began on an upswing, but the energy squeeze and gasoline regulations caused a travel slowdown through our usually busiest fall and winter months. This created a quandary for the Garden, as it did for many other organizations who depend in great part on tourism. Spending of accumulated funds had to be temporarily curtailed as no one could predict the extent of the "freeze." The Garden's attendance dropped off 19 per cent. Other organizations had greater losses.

Despite the reduced attendance, we attracted more local people, and our Visitors' Building sales were slightly higher than last year. Our total income was over $6000 higher than last year's, which until then was the highest in the Garden's history.

Visitors to the Garden are contributing more as voluntary admissions and their purchases increased by 20 per cent. However, inflation may be a possible factor here.

Our liquid assets are the highest we have ever accumulated, but this was a deliberate plan in view of our building program.

You may notice that the Inventory figure is nearly double that of last year. This is due to our "stockpiling" our publications: "Cacti of the Southwest," "Cactus and Succulents," and the "Self-Conducted Nature Walk". We were able to get good prices on printing and paper last fall and took advantage of them. The supply of the first two books should last us and our outlets for at least three years.

Retirement fund premiums, up from 1972-73, will be lower again for 1974-75 because of dividends credited from previous payments.

Part of the Valley Bank savings account will be used toward installation of 2400 ft. of two-inch water lines and toward the Bicentennial Arizona Plants Nature Trail.

The First Federal certificate of deposit is a ten-year certificate yielding 7¾ per cent on the $6600 accumulated as Life Memberships in the Garden.

The Flower Preservers gave the Garden $500, as well as the profit from the sale of their works.

The Southwest Savings account represents a $5000 certificate of deposit given to the Garden in memory of William Z. Smith, Jr.

Under EXPENDITURES you will notice that wages were higher. They will increase this year, along with payroll taxes and employer's contributions. Other expenditures are about in line with last year's.

If 1972-73 was the year of the big floods, 1973-74 was the year of the big influx of rabbits and jackrabbits because of the dry winter and spring. That caused the "critters" to seek moisture and food in the Garden, where they dined on heavily-spined barrel cactus, saguaros and prickly pears. To defend ourselves from being overeaten, we had to purchase 2000 ft. of hard-to-find wire netting to wrap around the plants. The cost and installation has cost us over $250, but in the meanwhile we had lost about $700 worth of plants! Damage continues in adjoining Papago Park where no measures have been taken to protect the cacti.

Ten new seven-foot-high herbarium cases were installed last fall in the Herbarium, greatly relieving the crowding of cases which must hold the 12,000 herbarium sheets in the care of Curator J. Harry Lehr. There were only 2200 sheets when he joined us four years ago. Mr. Lehr has obtained many new species for the herbarium, as has our Horticulturist, Rodney Engard.

Dr. Howard S. Gentry, Research Botanist, has completed several field trips to add material to his study of the Agavaceae which is financed by a NSF grant. He has made several review trips to herbaria on the west coast and will be visiting eastern and European herbaria next year.

The Richter Memorial Library has been a hub of activity this past year. One of the projects was rebinding books and binding scientific periodicals, which cost about $500. Over 100 monthly publications were received during the year. Many of our members and many students find the Library a great place for research.

Our faithful volunteers continue to help us daily in the Visitors' Building, in the Garden, in the Library, and in the plant propagation area. Our recent appeal for additional volunteers brought a number of new workers who will soon begin helping out in various parts of the Garden. We cannot repeat too often how much we value their services.

MEMBERS' ANNUAL MEETING

The Garden's Articles of Incorporation require an annual meeting on the first Sunday of May. May fifth found a large group in the Library, the meeting being presided over by John Rhuart, Board President. Minutes of the last meeting were read by Secretary Angela Bool.

Board Member Alice Feffer and Garden Member Henry Triesler tabulated the mailed-in votes. Incumbent board members were reelected. Director W. H. Earle reported on the past year's activities, the Garden's finances, and future plans.

Attending members entered into the ensuing discussions, and made many constructive suggestions that will be referred to the Board Meeting next week.

ANNUAL BOARD MEETING

Mabel and Jim Cahill (Advisory Board Member) graciously hosted the Board's annual dinner meeting at their home in Phoenix on May 8th. Attending were Board members and their spouses, a total of twenty-four persons.

Presiding at the meeting was John Rhuart, Board President. Minutes of the last meeting were read by Angela Bool, Secretary, and were approved. Mr. Rhuart reported on the Annual Members' Meeting. Election of officers was held, and the current officers were unanimously reelected.

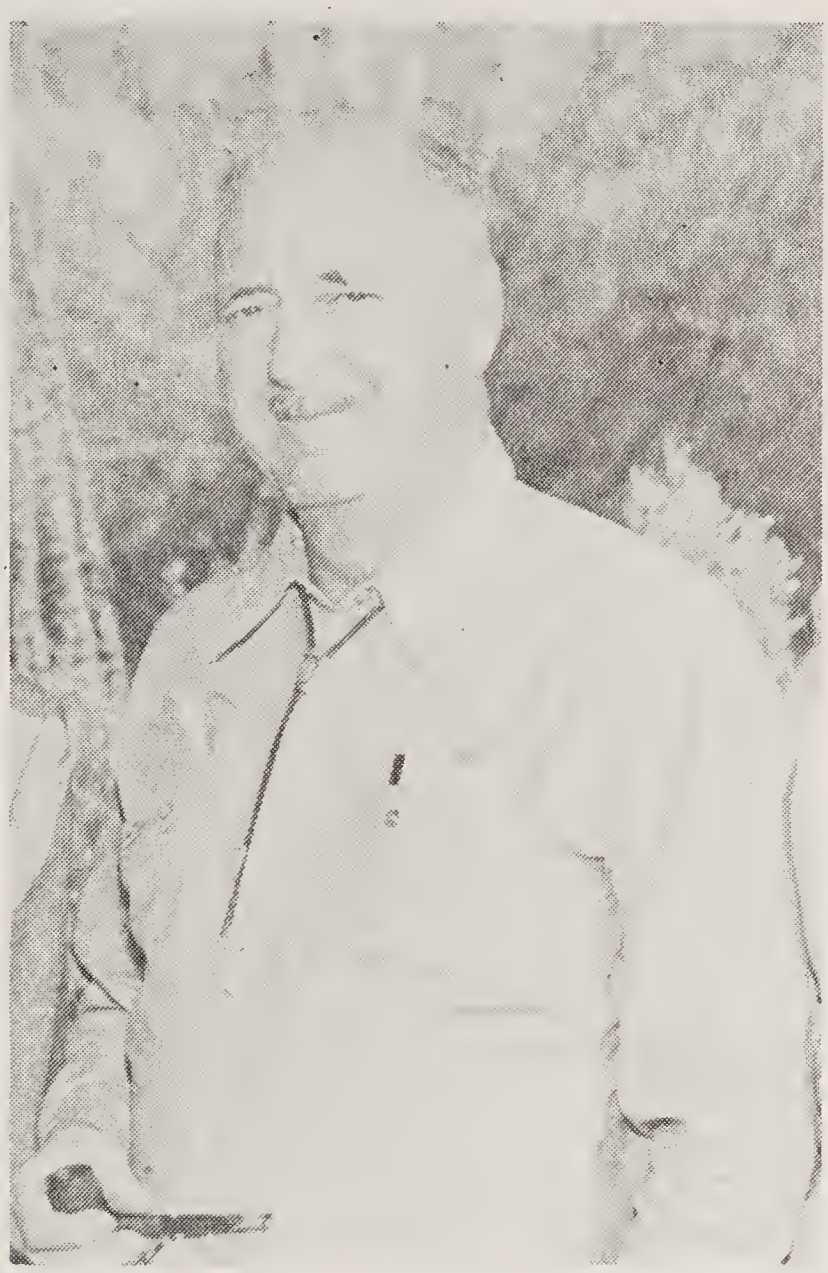
The financial report was given by W. H. Earle in the absence of Treasurer Tom Goodnight. It was followed by a report of the year's activities.

The Board heard a request from Charles Christensen, Director of Phoenix Parks and Recreation, for a renewable easement along the Garden's 2200-ft. east fence line for one of the "legs" of an 11-mile Papago bicycle loop. A committee was appointed to meet and discuss the request and report later to the Board and to the City Parks Dept.

Mildred May spoke on the Arizona Bicentennial Commission and its association with the Garden in sponsoring, with matching funds, an Arizona Plants Nature Trail and Nature Center.

Tom Salmon of F. C. MacDonald, environmental and landscaping architects, presented sketches and plans of the nature center and trails that we wish to construct on three acres north of our Visitors' Center parking lot. The project would have 1½ miles of trails bordered exclusively with Arizona desert plants, the trails to be used by grade

school, high school and college field trips. This area of trails would then take the load off the Garden's trails as well as serve to give students studying Arizona's desert a clearer idea of our state's desert plants. Many meetings relative to this project will be held before construction begins.



CHARLES E. MEIG
1899-1974

Charlie Mieg — none of his friends could call him "Mr. Mieg," and all the Garden's staff felt that he was a real friend — died on May fifteenth. Charlie was a legend in his time, but by no means a self-advertising legend. Many who met him casually were never cognizant of his many abilities until they had been with him for some time.

What a great person he was, and how we shall miss him! He was a colorful raconteur who enjoyed shocking his stuffier listeners with blunt talk while narrating his highly varied experiences. His years of hard labor and hard thinking made him an independent man who reminded one of the early pioneers.

He was born in Switzerland, prospered in banking and real estate in New York City and later in Florida, and then came to Arizona in the 1930s. He prospected for gold and other minerals through the Bradshaw Mountains, and spent much time at the Bagdad mines. In the early 1940s he came to Phoenix and entered the real estate business. He purchased land on the north side of Mummy Mountain and turned it into home sites that have an

unparalleled view of Paradise Valley and the distant mountains. He was instrumental in the incorporation of the city of Scottsdale and in setting up the town of Paradise Valley.

Charlie became a member of the Garden in 1949, soon founded the "Cactomaniacs" — of which he was the "Chief Maniac" — and shortly thereafter became an active Board Member, helping immensely with his enthusiasm and wisdom through the years to plan and direct the Garden's development.

He was most happy while on plant exploration trips in Mexico, many of which he reported in the Saguaroland Bulletin in his inimitable style. Botanists from the United States and Europe were guests on his Mexico trips, where he displayed an uncanny ability to pinpoint the obscure locations of rare plants that he had discovered on previous trips — no mean skill. Many of these cacti were later described botanically as new species, but, strangely, none was ever credited to Charlie's discovery. Your writer, however, did find a new Mammillaria east of Hermosillo, Sonora, which he named **Mammillaria miegiana**, fulfilling in part one of Charlie's dreams.

His interest in cacti embraced many aspects of the subject. He was much more than a skillful grower of plants for his own garden; his interest led him into serious study as well as experimental work and correspondence with botanists the world over. He surrounded his home with an abundant botanical garden from which, in 1970, he supplied hundreds of plants to the New Mexico Zoological-Botanical Park in Carlsbad. He also donated many rare cacti to the Garden and started many cacti from seed for us. Only last year he started to grow more new cacti, but just last month, feeling unable to look after them, gave the now juvenile plants to the Cactomaniacs.

A memorial will be established at the Garden for our beloved (wouldn't he laugh at that word!) Charlie. Quite a few contributions have already been received. We feel that the many Garden Members who knew Charlie Mieg will be glad to learn of the memorial fund and participate in it to honor the memory of that fine man and good friend.

—WHE

Publications by Charles Mieg in the Saguaroland Bulletin

(Since 1950 Charlie contributed articles to the Bulletin on such a variety of subjects that a glance at the following list must surely suggest the wide range of his interests. What it cannot suggest is that, besides being eminently qualified to publish articles on rare cacti, taxonomy, and the culture of cacti, Charlie was a very funny man. Even in straightforward reports of collecting trips to Mexico, the wry and sometimes outrageous Mieg humor pops out, and Bulletin readers may remember his 1972 article on collecting that began: "The cheapest way of coming by a good plant is to steal it." Members wishing to read or re-read any of these articles will find them in our Library.)

Oct. 1950, Coloradoa, a rare cactus
May 1951, What Price Cactus?
Dec. 1951, "The Cactomaniac"
Nov. 1952, Buying Cactus Plants
Oct. 1953, Coloradoa mesae-verdae
Dec. 1953, Coloradoa mesae-verdae
Oct. 1954, In Mexico
Oct. 1954, review of Barschus' "Kakteen"
Jan. 1958, Taxonomic Observations
Feb. 1959, Collecting Seeds in Mexico
Nov. 1959, Collecting in Colima, Mexico
Dec. 1959, Collecting in Colima
June-July 1960, Collecting Seeds in Mexico
April 1963, Frost Damage to Cactus
June-July 1966 through Oct. 1966, Mexico, Five Years Later
Jan. 1967, Notes on Germination
Aug-Sept. 1967, "From a Cactomaniac's Diary"
Feb. 1968, On Monstrosity in Cactus
May 1968, A New Mammillaria, **M. miegi**
Aug-Sept. 1969, Medicinal Uses of Palo Dulce
Nov. 1972, "Mieg Among the Cacti"

ASPECTS OF THE DESERT

Sunset Crater is an 800-ft.-high cone of sunset-red cinders. In 1064 it erupted, covering 800 square miles of land with a thick layer of volcanic ash which made the soil excellent for farming. Soon, large groups of Indians settled nearby, and ruins of their pueblos abound in this part of north-central Arizona.

ARIZONA CACTUS & NATIVE FLORA SOCIETY, INC.
SPONSORING THE
DESERT BOTANICAL GARDEN
FINANCIAL REPORT
5-1-73 — 4-30-74

	Comparison 1973-1974	1972-1973
ASSETS		
Accounts Receivable	$ 274.20	$ 624.45
Inventory	22,603.08	13,068.35
Deposit, State Compensation Fund	534.00	315.38
A. CASH:		
VNB-Checking Account	4,515.37	8,221.41
Petty Cash	295.00	302.65
B. SAVINGS:		
Retirement fund	10,818.56	9,880.83
VNB Savings account	33,992.04	25,513.80
First Federal Savings (C of D)	6,600.00	3,595.17
First Federal Savings—Savings Account	271.03	2,862.15
Southwest Savings	5,056.55	0
Flower Preservers	650.47	0
IN TRUST		
Clifford M. Schroeder Memorial Fund	670.39	638.70
	$86,280.69	$65,023.31
LIABILITIES		
Accounts payable	0	$ 49.05
Arizona State Compensation Fund	0	83.46
Arizona Withholding Tax	0	59.84
Arizona Unemployment Tax	0	125.97
Federal Unemployment Tax	0	70.80
		$ 389.12
INCOME		
Retail sales	$90,189.50	$90,137.77
Retail sales tax	2,413.51	2,551.24
Wholesale of Garden Books	4,820.19	4,773.11
Wholesale of garden seeds	3,987.90	2,230.65
Contributions (including C.C. Pidgeon memorial of $315.00—1973)	1,427.63	2,690.71
Voluntary admissions	21,701.02	23,659.99
Memberships	7,107.52	7,660.87
Endowment	16,000.00	16,000.00
Library fund	10.00	205.95
Interest and dividends	206.28	1,058.90
Herbarium fund	0	614.34
Miscellaneous	9,273.04	357.28
Indirect costs—NFS Grant (Agavaceae)	3,120.00	2,080.00
	$160,255.59	$153,960.81

EXPENDITURES	1973-1974	1972-1973
Purchases for bookstore resale	$ 50,501.38	$ 48,662.54
Arizona retail sales tax	2,324.53	2,469.98
Gross wages	50,001.19	46,376.92
Payroll taxes, federal employment	4,182.39	3,268.04
Office supplies and stamps	1,469.92	1,273.79
Library books, subscriptions, supplies	796.91	380.10
Herbarium supplies	151.02	310.14
Monthly Saguaroland Bulletin	2,349.92	3,616.42
Utilities	4,436.72	4,201.31
Fleet expenses	1,808.18	1,836.14
Insurance: life, accident, hospital	2,654.50	2,930.60
Retirement fund	9,901.56	7,096.43
Insurance: state comp. fund	779.62	433.73
Insurance: fire, theft, liability and property damage	2,261.00	2,329.00
Cactus Show	427.74	568.30
Travel, entertainment, public relations, and miscellaneous	592.24	1,062.49
Advertising	484.14	1,362.98
Garden and building maintenance	6,312.54	1,837.10
Lease	25.00	25.00
Miscellaneous	5,229.91	0
Capital improvements	130.99	3,875.39
	$146,821.40	$133,916.40

Miscellaneous charges include: Petty cash, $1,336.53; Depreciation, 129.47; National Science Foundation, 60.28; Flower Preservers supplies, 2,473.75.

CAPITAL IMPROVEMENTS

Metal Publications Building	$250.00
Plate cabinet for addressograph	45.00
10 Herbarium cases	$2,520.00

ATTENDANCE of 81,493 persons contributed $21,701.02 or .265 to voluntary admissions, compared to 98,607 persons contributing $23,659.00 or .24 cents per person during 1972-73.

RETAIL SALES of $90,188.50 divided by 81,493 persons averaged $1.11 per person compared to $90,095.02 divided by 98,607 persons averaging .91 per person during 1972-73.

Memberships for 1973-74:

Members	1279
Exchange	50
Publicity	35

The following groups met at the Garden:

1	Annual Cactus Show	8536	
1	Arizona State Hospital	10	
2	Board Meetings	32	
1	Bonsai Meeting	17	
3	Boy Scout & Cubs	47	
4	Camp Fire Girls	49	
15	Classes in Desert Plants	520	
8	Cactomaniacs Meetings	296	
17	Junior College Classes	440	
10	Conventions	632	
4	Garden Clubs	80	

6	Girl Scouts & Brownies	98
28	Grade School Classes	1351
3	Fashion Groups for photos	14
16	Flower Preservation Classes	186
6	Foreign Tours	160
10	High School Classes	291
23	Lectures, Flora & Fauna	648
1	Loretta Young Youth Project	28
14	Private School Classes	330
1	Members' Meeting	18
2	Statesmen Club Tours	110
6	University Classes	189
6	Tours by foreign botanists	30

The Garden participated in the following activities away from Garden:

1	Arizona Academy of Science	165
1	Arizona Nurserymen Assoc.	140
1	Arizona State Fair Exhibit	?
2	ASU workshops	64
1	Cactus Convention, Las Vegas	225
2	Cactus & Succ. Society, L.A.	36
	Casa Grande Ruins-Consult.	—
12	Field Trips into desert	272
1	Glendale Garden Club	22
1	Home Landscaping Fair	?
2	Men's Garden Club	88
1	Mesa Pioneers Club	26
1	Scottsdale Library series	66
2	U of A Conferences	255
1	Statesmen Club Trip	19
8	T.V. Showings	?

Stored in the Publication Building the following books and cards for continuing sales—

		—VALUES—	
	Cost	Wholesale	Retail
10,450 copies of **Cacti of the Southwest**	$ 5,880	$11,922	$20,375
7,700 copies of **Cacti & Succulents, etc.**	$ 1,080	$ 3,465	$ 5,875
24,000 copies of **NATURE WALKS**	$ 1,056	———	$ 6,000
44,000 postcards of the Garden	$ 1,342	———	$ 3,600
	$ 9,358	$15,387	$35,850

NATIONAL SCIENCE FOUNDATION GRANT FOR THE STUDY OF AGAVES By DR. HOWARD GENTRY

Amount of Grant, $34,900.00 to be disbursed from September 1972 to September 1975.

			Cash on Hand	Grant Money Due, $34,900.00
9-72—8-73	Income	$10,600.00		$10,600.00
	Expenses*	9,896.83		
			$ 703.17	
				24,300.00
9-73—3-74	Income	6,217.00		6,217.00
	Expenses	4,715.63		
			1501.37	
9-74—8-75			$2,204.54	$18.083.00

*Expenses:	Salaries	$1,558.50
	Taxes	327.40
	Indirect costs	1,560.00
	Field trips	1,051.64
	Postage	19.93
	Herbaria Review	198.16
		$4,715.63

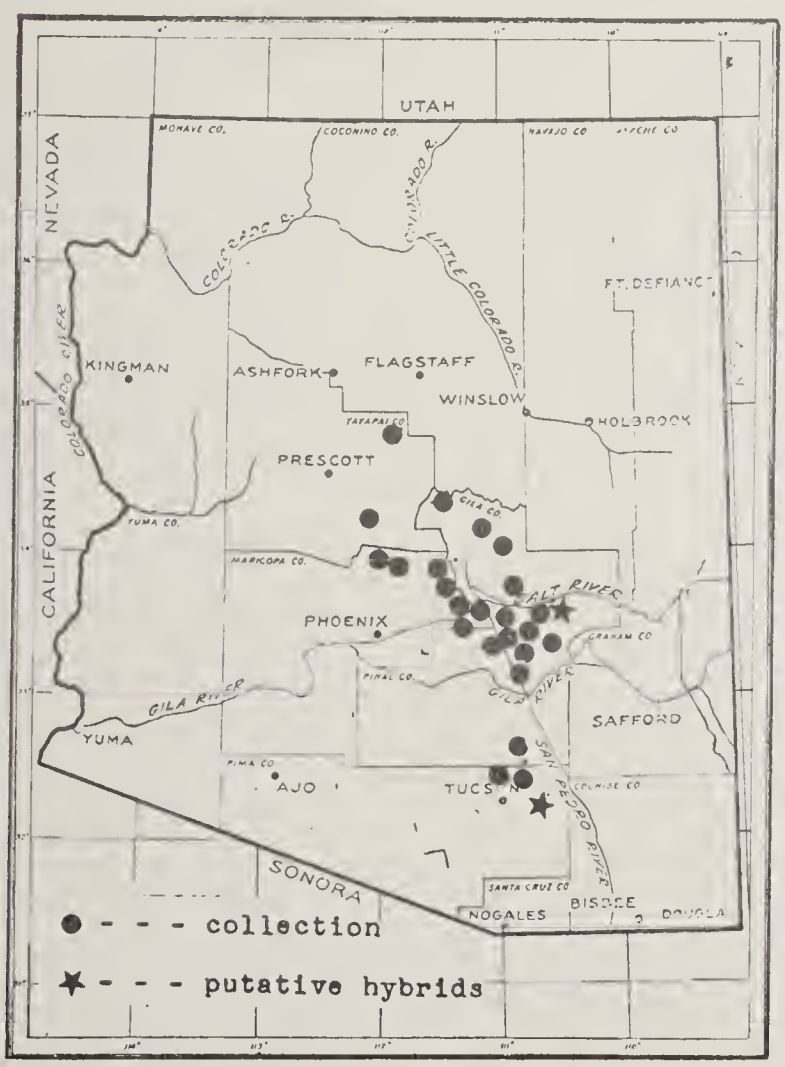
1974-75 Garden Improvements Needed

2400′ of 2″ Water Line	$13,000.00
Painting and general repairs	1,200.00
Plant identification labels	1,100.00
Bronze building erection date plaques	300.00
Bicentennial Arizona Nature Center and Trails	30,000.00
Fencing of garden	7,000.00
Black-top service road	6,500.00
Black-top paths	1,200.00
Build up Australian plant section	600.00

THE GOLDEN FLOWERED AGAVE OF ARIZONA

By Howard S. Gentry

Agave chrysantha, the golden flowered Agave, is one of several known only in the state of Arizona. It grows on the semi-arid mountainous slopes of Chaparral and Juniper Grassland, arching about the desert proper between elevations of 2000 and 4000 feet (see map). Like most Agaves it prefers the mountain slopes, and whether it is on volcanic or limestone seems to make little difference. There is a large stand of this Agave in the craggy canyon of Queen Creek just east of Superior in the Pinal Mountains. This is the type locality and many individualistic specimens can be observed here (Fig. 1). The individual rosettes vary in size, leaf coloring and armature, but are characterized by remote teeth and by the bright yellow flower clusters untinted by red or brownish flushes, as are the flowers of its near relatives, **A. parryi** and **A. palmeri**. It appears to hybridize with the former up about the bases of Sierra Ancha and with the latter in the Rincon Mountains in its southern limits.



Distribution of *Agave chrysantha*, based on herbarium specimens.

Agave chrysantha is at its finest during June and July when it flowers, especially if the spring and summer rains come on time. This is a good season to get out the binoculars and go bird watching, as many birds frequent the high flower perches. They are attracted by the sweet flower nectar and the numerous insects that also throng to the rather foetid but sweet nutritious juice. Hummingbirds, flickers, thrashers, doves, flycatchers, ravens and many others have been observed as quite regular visitors. The crowns of these treelike flowering stalks are open and allow good views from every side. While the flowering structure has evolved (at least in part) to attract birds and other small animals to assist in flower pollination, the armed leaves are designed to repel.

The teeth and spines on Agave leaves appear to have evolved for the plants' protection, warding off the nose and teeth of hungry animals. This would have been of great survival value in past geologic ages when North America teemed with a rich array of herbivores: wild horse, camels, antelope and deer of many species (Scott 1937). One wonders if the giant Pachyderms and others fed on Agaves, helping to create the relative vegetative scarcity of Agaves at the present time. Leaf fragments of the Joshua Tree were found in mummified stomachs of the giant ground sloth in the Gypsum Cave deposits of Nevada, as reported by Harrington. Agaves are palatable to many modern animals; rodents gnaw the leaves and eat the flowers. All animals like the sweet tender flowering shoots: bighorn sheep, burros, deer, horses, and other cattle. Preliterate man also consumed them regularly, as was recounted in the foregoing issue of this Bulletin when Agave **deserti** was discussed.

This is the dominant Agave of the area east of Superior, Arizona.

The leaf is remarkably formed for the extremes of desert wet and dry cycles. Leaves have a radiate arrangement, deployed like a wheel of little troughs which collect the rain and direct it inward toward the base of the plant, which, being shrunken away from the confining soil, leaves crack-way for dripping water to penetrate more deeply to the roots. Another great structural asset for desert survival is the waxy cuticle that covers the epidermis of the leaf like a plastic film. This is a translucent envelope around the leaf, allowing light for photosynthesis while it foils the hot sun rays and reduces moisture loss from transpiration. W. L. Ehrler of the U.S. Water Conservation Laboratory in Phoenix has found that Agaves have far fewer stomates than most other plants, and that these "pores" close during day and open at night, the reverse of most plant habits. This habit also serves to conserve moisture. The plant Agave, under the aegis of climate and hereditary selection, has devised its own air-conditioned greenhouse. By observation we can read adaptation in the structures of flower, leaf, and stem.

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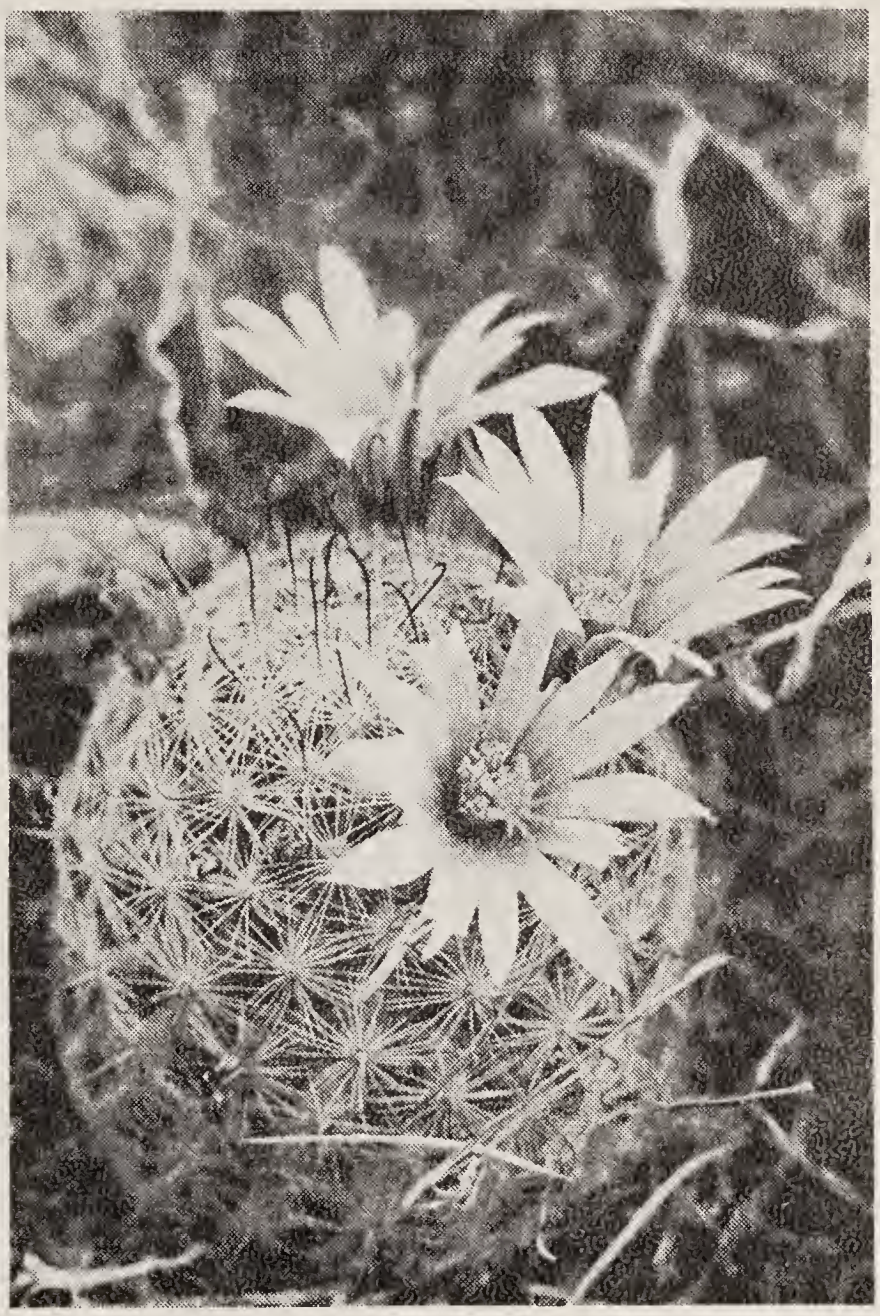
SAGUARO LAND BULLETIN

DESERT BOTANICAL GARDEN of ARIZONA

Vol. XXVIII August-September, 1974 No. 7



REG MANNING

SAGUAROLAND BULLETIN

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W. HUBERT EARLE, Editor
LILLIAN DIVEN, Associate Editor

Vol. XXVIII | August-September, 1974 | No. 7

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Table of Contents

Editor's Notes 75
Summer Construction 76
Fishhook Cactus, *Mammillaria grahamii* 78
Aspects of the Desert 79
Arizona Poppy, *Kallstroemia grandiflora* 80
Indian Mallow, *Abutilon californicum* 81
Cardon Espinoso, *Lemaireocereus weberi* 83
Arizona Plants in USSR 84
Garden Activities 84

Cover: *Mammillaria grahamii*

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Garden Open Daily 9 A.M.-5 P.M. Including Holidays

Editor's Notes

IMPROVEMENTS: In July 1974 we were able **for the first time** to operate six sprinklers simultaneously. That is because we finally have adequate water pressure, in our newly-installed half-mile of three-inch transite water line, shown in the photos in this issue.

We have been low on water since we reopened the Garden in 1946, and the situation got worse as new plantings increased our needs for water.

The City of Phoenix installed a new twelve-inch water line paralleling our north boundary last winter. We had planned to run a two-inch line from it into the Garden, but, as our finances were ample, our Board of Directors felt that a larger line would take care of future Garden expansion. We were most fortunate to get this large job done well at a cost of $15,000.

We also widened the parking lot and road behind the auditorium and realigned the service road. Now we have good parking space for auditorium activities. Moving the road away from the Archer House and giving it its own driveway now provides more privacy for the house.

Evaporative coolers were installed in the auditorium through a gift from Lucille Blessing Earle. The roof was insulated last year, and now the auditorium is a comfortable place for summer meetings. We are very grateful for this fine gift.

PROGRAMS: Enclosed with this Bulletin is your 1974-75 **Program of Activities**. Be sure to hang it up and refer to it to enjoy the variety of activities the Garden will present in the coming year.

New slides will be used in the Lectures this year.

Please note that **Classes** will start at 2:30 p.m. Some class work will be done outside in the Garden.

Flower Preservation classes will consist of five workshop classes taught by Joan Smith, one of the earliest students who now is a teacher in her own right. We certainly thank Janet Alsever who founded the group and taught classes for the last two years. During that time the Flower Preservers group amassed $11,672 for the Garden. Less expenses, this amounted to a $4,891 contribution to Garden improvements, of which we have $516 still unspent. Again, many thanks!

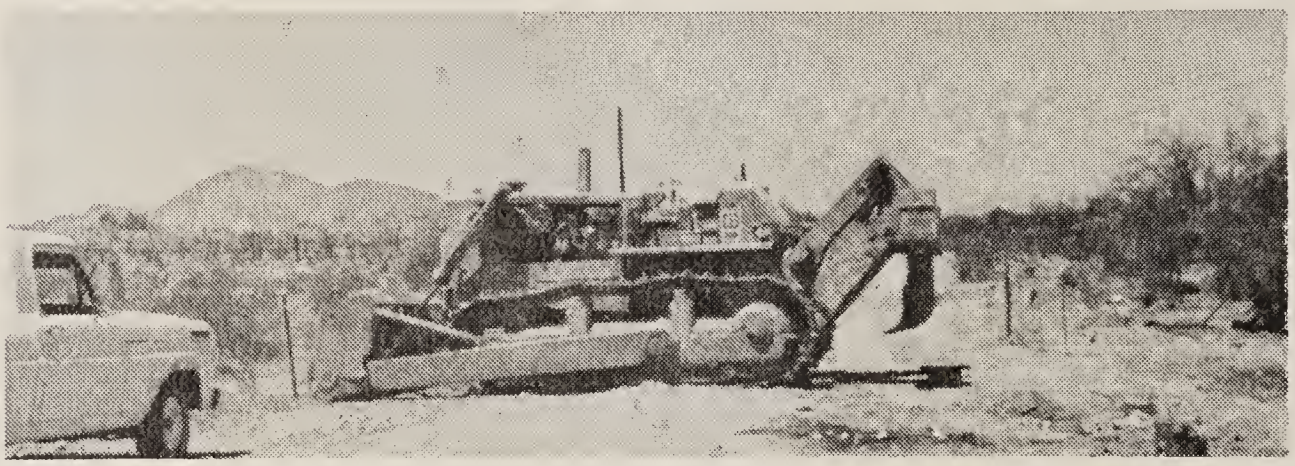
Field trips will be conducted by Rodney Engard, our Superintendent. The purpose of these trips is the observation of native flora in natural habitats. Trip size is limited, so reservations are important — call the Garden at 947-2800 to reserve a place. Preparations: wear sturdy shoes or boots; bring lunch and water. Meeting place: Garden's Visitors' Building. Trips leave **promptly** at 8:30 a.m. and return between 4:30 and 5:30 p.m.

The first trip of the season will be on Saturday, October 5th to Peck's Lake, Sycamore Wilderness. Nearest town is Cottonwood. Driving: 100 miles one way. Type: three-mile steep climb in canyon; easy walk at lake. See: aquatic plants at lake and riparian vegetation.

Similar data on future trips will be included in the Bulletin issue published prior to the trip.

(Continued on page 78)

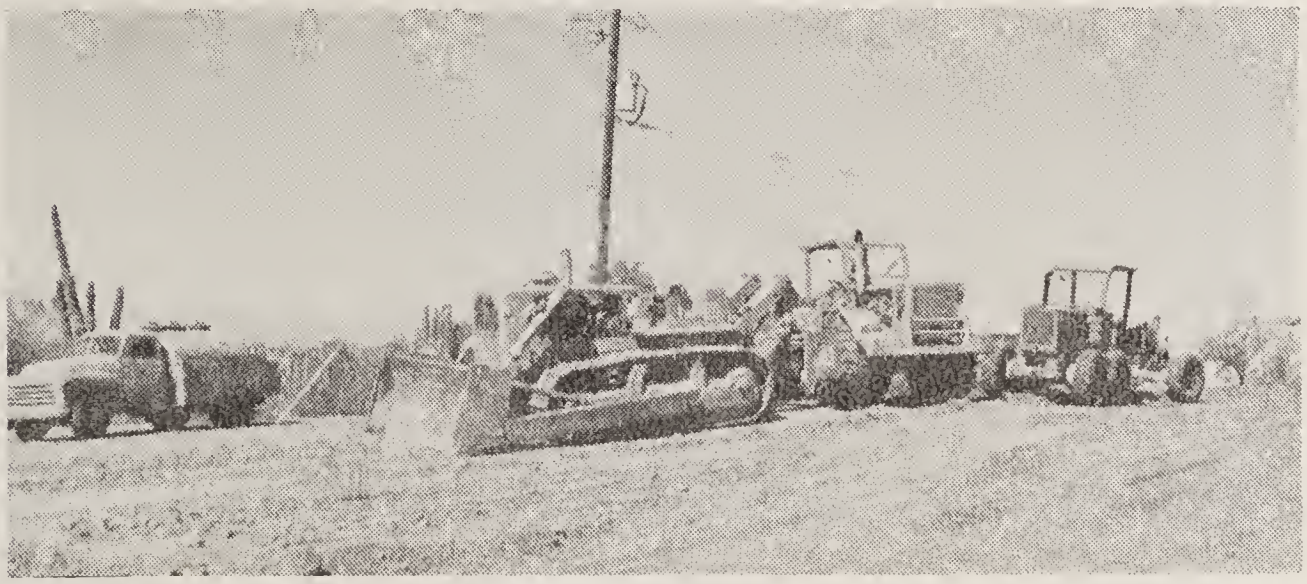
No, not a body! A wrapped saguaro cactus being moved out of the area of the new water line trench.



A heavy-duty tractor with a four ft. ripper blade (rental $65 an hour) to tear up the hard caliche and rock for the half-mile-long trench.

Two back-hoes worked from either end of the "ripped" caliche to make the three-ft.-deep trench.

Right: Dresssing the bottom of the trench before laying the half-mile of transite water pipe. *Middle:* Other heavy equipment was used to dig out a roadway along our rocky hillside from the Administration Bldg. to Galvin Parkway — 1/3 mi. long. *Bottom:* The hard-packed soil was cut down and graded for a new 40-car parking area convenient for meetings and the Cactus Show. Members and show exhibitors have needed this space for a long time.



Arizona Cactus

FISHHOOK CACTUS
Mammillaria grahamii
Cactaceae

This lovely whitish Mammillaria was well known to earlier botanical writers from Dr. Engelmann's description of it in the Emory Report of 1848. When Britton and Rose (in Cactaceae, 1921) made **M. grahamii** merely a synonym of **M. microcarpa** many writers and botanists rebelled. It was finally brought back out of oblivion as a species in its own right by Dr. Lyman Benson in Cacti of Arizona, 1969, and we owe him thanks for his shrewd analytical work.

Stems of **M. microcarpa** are three to six inches tall and only 1½ to 2 inches in diameter. They are quite different from each other and it is hard to imagine that **M. grahamii** could be lumped with **M. microcarpa** by any botanist.

M. grahamii has green stems densely covered with 20 to 26 spreading silvery radials from each areole. The one to three central spines are dark red to black, the longest slightly curving, slender, hooked, and one-half inch to one inch long.

Flowers appear several times through the summer, usually first in early May, then late July and possibly again in September. They form a circle just below the apex of the plant and are a bluish-pink with a dark purple midrib and a whitish-pink margin on each petal. Flowers may remain open for several days on plants at higher elevations. Fruits are scarlet, club-shaped, a half-inch to an inch long, and edible, bearing small pitted black seeds.

The plant pictured on the cover of this issue is a good four inches tall and slightly wider, noticeably different in shape from **M. microcarpa**.

These cacti are found growing in granite soils among rocks, and prefer the shade of low bushes and trees.

Type locality: "On the Gila (River), 3-4000 ft. above sea level."

Distribution: Southwest Texas, New Mexico, Arizona, northern Mexico. 3-5000 ft. elevation.

REFERENCES
Benson, Cacti of Arizona
Craig, Mammillaria Handbook
Weniger, Cacti of the Southwest

——WHE

EDITOR'S NOTES—

(Continued from page 75)

The **Central Arizona Cactus and Succulent Society** (affiliate of the C&SS of America), formed last year, will be meeting at the Garden on the last Sunday of each month. Mr. Henry Triesler is their president. For more information about this study group telephone Mr. Triesler at 252-2828.

Cactomaniacs will meet on the first Tuesday of each month. Several fine speakers and slide shows have already been lined up. A new feature of each meeting will be a discussion by Rodney Engard on an aspect of the care of your plants. Watch for subjects in the Bulletin. Your Director had the opportunity to attend and participate in the American Association of Botanical Gardens and Arboreta regional meeting at Mansfield, Ohio in August. Very many midwest and eastern botanical gardens are interested in desert plants and their culture today. A common problem is persuading their employees that the heavy watering good for their more familiar plants is **not** good for desert plants. Slides made on this trip which included visits to various botanical gardens will be shown at the October Cactomaniacs meeting.

ASPECTS OF THE DESERT

For our desert-bound Garden Members who are feeling just about now that 1974's extra-long summer will never end, we present this reminder that the aspens (*Populus tremuloides*) of Arizona's high country will soon turn from green to gold, even on the mountainsides that overlook the desert.

Arizona Wildflower

ARIZONA POPPY
Kallstroemia grandiflora

Zygophyllaceae
Caltrop Family

We drove down to Nogales in mid-August, a trip we usually take in winter or spring, and saw one of the most beautiful wildflower displays we have encountered in twenty years of living in Arizona.

For the last eighty miles of this 180-mile drive south, there were increasing numbers of Arizona Poppies in full bloom, and south of Tucson all roadside slopes, all highway medians, all hillsides and washes and uncultivated areas were covered with the dark green foliage and bright orange flowers of this showy native annual. There must have been millions of flowers visible from Interstate 19, as far as the eyes of a cautious 55-mile-per-hour driver could see, in full bloom all at once because of the summer rains.

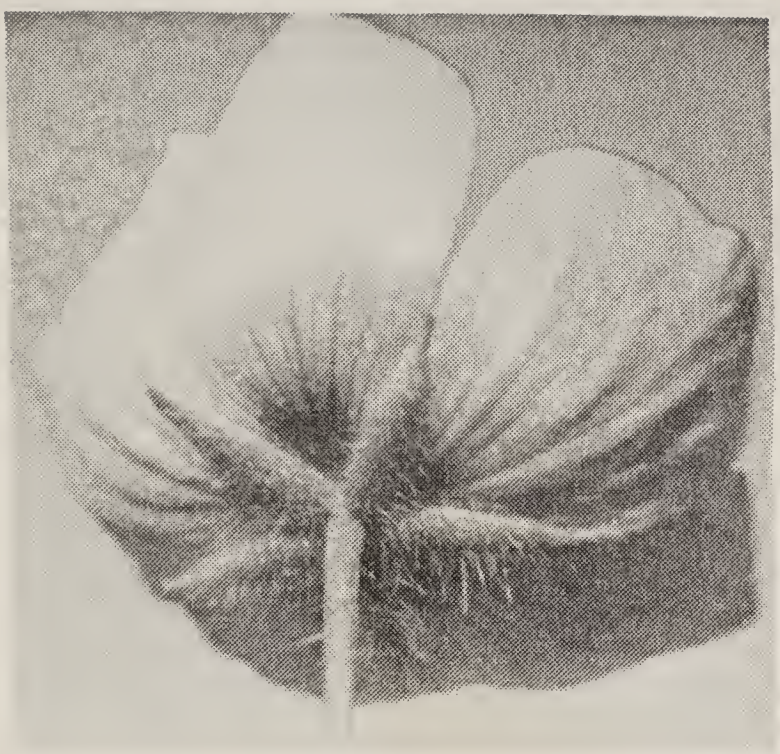
Although we call it Arizona Poppy, and it resembles our springtime California Poppy, **Kallstroemia grandiflora** isn't a true poppy. It belongs to the same family as the Creosote Bush (**Larrea tridentata**) and that obnoxious weed the Puncturevine or Bullhead (**Tribulus terrestris**). As a matter of fact, Arizona Poppy looks a lot like a Puncturevine that is enlarged, more colorful and "defanged" — the fruits do not possess the penetrating spines that the weed develops.

Arizona Poppy has five petals, California Poppy has four.

Kallstroemia grandiflora is an outstanding summer annual that is found from Texas to Arizona and south into Mexico at elevations of 5000 ft. or less. In Arizona it can be found from Yavapai County south into Cochise, Santa Cruz, Pima and Yuma counties, but it is particularly abundant in the counties along the Mexican border. It has been found in flower from February through September and even into October, but the most profuse flowering occurs after the summer rains in July and August. We have never seen it in bloom before late June, and plants grown from seed here at the Garden, and watered twice a week since February, didn't leaf out until late July this year. The alternative name "Summer Poppy" is an appropriate one.

The five-petaled flowers are a deep orange or a lighter orange with dark orange centers. They can be more than two inches across, as the rounded petals are from five-eighths of an inch to an inch and a quarter long. There are ten stamens arranged in two whorls. The solitary flowers grow on slender stalks in the leaf axils.

Both the stems and the dark green leaves are covered with fine hairs, stiff ones on the stems and downy ones on the leaves. The leaves are opposite, up to three inches long, and divided into five to seven pairs of smooth-margined leaflets from a third of an inch to an inch in length. The



Note that sepals, as well as stems and leaves, carry fine hairs.

long, weak stems usually sprawl, but when the plant grows beneath a shrub they can climb through the branches and give the impression of a bush higher than the eight-to-thirty-inch normal height.

The fruit is a pod that splits into eight to twelve wedge-shaped one-seeded nutlets.

Desert gardeners really should try this handsome annual. When you see a plant in flower, make a note of its location, return when the seeds are ripe, and collect some for planting next spring. You will add some welcome color to your garden when next summer comes around.

REFERENCES:
Kearney & Peebles, Arizona Flora
Parker, Arizona Weeds
Shreve & Wiggins, Vegetation and Flora of the Sonoran Desert

—LD

Desert Shrub

INDIAN MALLOW
Abutilon californicum Benth.
Malvaceae
Mallow Family

Abutilons are a common sight in Arizona's deserts and mountains. The one discussed in this article has a relatively wide distribution. It is found on dry rocky slopes in Yavapai, Graham, Maricopa, Pinal, Cochise, Pima and Santa Cruz counties. In addition it is found in Mexico, south to Oaxaca and to the cape region of the Baja peninsula. The type locality is, in fact, Magdalena Bay, Baja California. George Bentham in 1844 published the name **Abutilon californicum** Benth. Later, Watson published the same species as A. **lemmoni** Wats. His specific epithet has, of course, been relegated to synonomy. The elevational distribution is between 2000 and 4000 feet.

Abutilon californicum is characteristically an openly branched, erect shrub up to 2 m tall. Leaves vary greatly in size depending on the available moisture at the time of their development. Petioles vary from 1 to 2.5 cm long. The leaf blades are broadly ovate, 1.5 to 10 cm long, and rounded acute to near acuminate at the apex. The blade margins are indistinctly dentate-crenate. Leaves tend to be slightly paler green on the under side than on the upper light green surface. Stipules are linear to 15 mm long, caducous and densely stellate-tomentose as are the leaves and young stems. This last characteristic gives the overall appearance and texture of velvet to the plant. The sepal bases are connate, the free lobes being cordate-ovate, 6 to 8 mm wide and 1 to 4 mm long. The lobes become acuminate and up to 10 mm long when the plant is in fruiting stage. The corolla is composed of five yellow-orange petals, each 1 to 1.5 cm. long. The andrecium is a column of connate stamen filaments, surrounding the single style but not adnate to it. This type of filament arrangement is known as

Yellow-orange flowers measure one-inch-plus in diameter.

The papery seed capsules remain on the shrub long after maturity.

monadelphous. This stamen column is, however, adnate to the corolla base. The ovary has up to 12 locules, each containing two or more ovules. The ovary, upon ripening, becomes a capsule which is dehiscent septicidally and loculicidally from the free apex. These papery fruits may be found in abundance on the plants in the axils of the leaves after flowering. Flowering occurs March to September. The elevational distribution is between 2000 and 4000 feet. The cylindrical fruit is 10 to 12 mm wide and 9 to 10 mm high. The individual carpels may have a body length of 7 to 8 mm and are surmounted by a slender mucronate beak, 1.8 to 2.2 mm long.

This plant may be grown locally as an interesting native plant for the desert garden, but is not suitable for broader use in irrigated landscapes. Although the plant flowers freely throughout a long season, its flowers are too small and so situated on the stem that they never make a flashy show as many mallows do. It is very fast growing when well watered and fertilized. One the author grew achieved 1.5 meters growth in one year. Seed may be sown in pots or in the ground in the fall, with germination within 2 weeks if kept sufficiently moist. A large mounded hemisphere shape is achieved very shortly, so give it lots of room.

REFERENCES:

Kearney & Peebles, **Arizona Flora**

Shreve & Wiggins, **Veg. & Flora of the Sonoran Desert**

Standley, D. C., **Trees & Shrubs of Mexico.**

——RGE

A four-ft.-tall shrub. (All photos by Lyle A. McGill.)

CARDON ESPINOSO
Lemaireocereus weberi
Cactaceae

This most massive of all cacti is overwhelming on first sight — and on second and third sight, also. A single thick trunk will support a plant that is more than fifty feet high with hundreds of large arms, or it may be only 25 to 30 feet high but with a horizontal spread of over 100 feet. This is another of the tall cerei under which no native will take a rest for fear of an arm crashing down upon him.

L. weberi was first described in 1896 by John M. Coulter as **Cereus weberi**, and later by Weber in 1897 as **Cereus candelabrum**, which is indeed a good reference to its shape. Britton and Rose moved it into a newly-erected genus, Lemaireocereus, in 1909. In 1951, Curt Backeberg placed it in his Backebergian genus Ritterocereus.

L. weberi has a thick trunk, up to 18 inches in diameter and four to six feet high, supporting many vertical blue-green stems which themselves can reach a height of fifty feet. These stems may be ten to twelve inches thick with ten rounded ribs bearing large white-felted areoles. Out of the areoles spread six to twelve stiff radial spines surrounding a down-curving flattened central spine that is two to four inches long and brown, turning later to blackish and then to gray.

The nocturnal flowers are white and are four to five inches long. The globular ovary bears long brown hairs. The oblong mature fruit, which is edible, is 2½ to 3 inches long, very spiny at first but becoming naked as the fruit ripens. The black seeds are sold in the Tehuacan marketplace for use in flavoring tortillas.

This is a hard plant to grow outdoors in southern Arizona and California, as it is sensitive to our occasional freezes. It does, however, make a beautiful seedling, and is grown successfully indoors or in conservatories.

L. weberi usually grows on slightly sloping hillsides and fields in fairly good soil. It needs quite a bit of moisture and is usually surrounded by low-growing trees.

Type locality: South of Tehuacan, Puebla, Mexico.

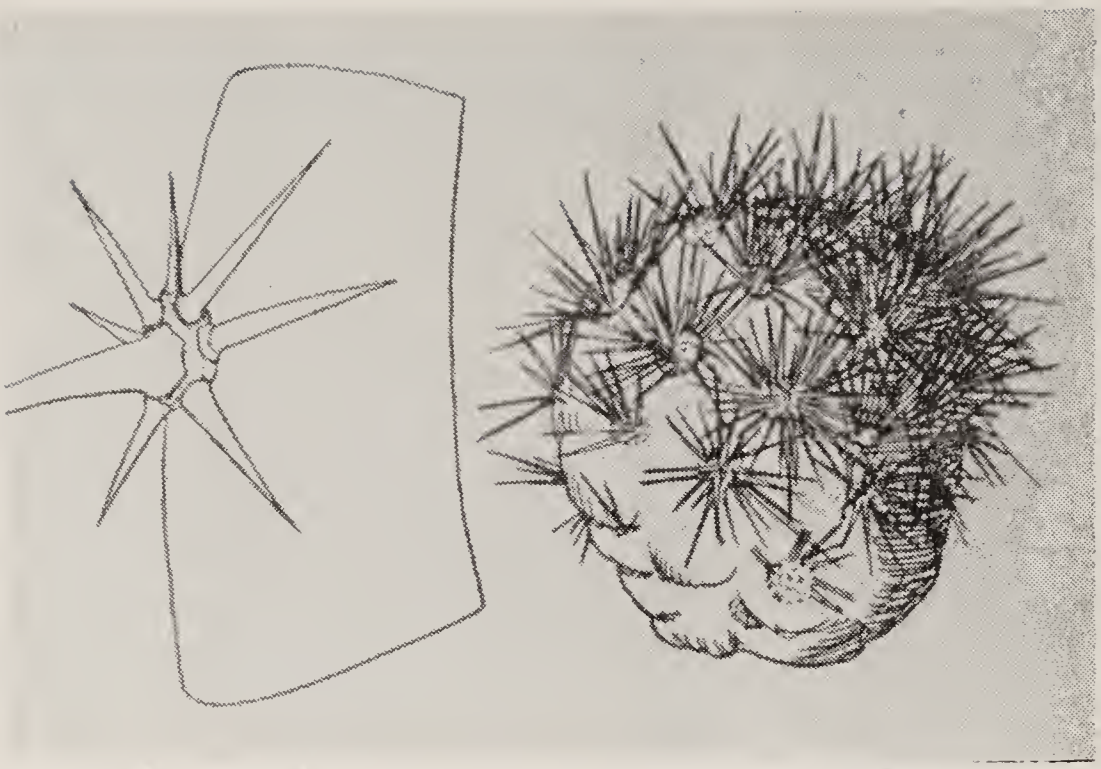
Distribution: Puebla and Oaxaca, Mexico.

REFERENCES

Borg, Cacti
Bravo, Las Cactaceas de Mexico
Britton & Rose, The Cactaceae
Schumann, Gesamtbeschreibung der Kakteen
Standley, Trees and Shrubs of Mexico

——WHE

This Cardon was photographed 44 mi. south of Taxco, Guerrero, Mexico.



Drawing from Britton & Rose shows cluster of spines and fruit of *Lemaireocereus weberi.*

From SOVIET LIFE, May 1973

"Arizona Flowers in Khabarovsk"

"There are 789 varieties of trees and bushes from many climatic zones of the Soviet Union and abroad growing in the arboretum of the Khabarovsk Research Institute of Silviculture. In one corner Arizona cacti, agaves and yuccas are being acclimatized. The arboretum recently received a letter from Mrs. Alice Feffer of Arizona with seeds of 17 flower varieties enclosed."

———

Actually, Advisory Board Member Alice Feffer visited the USSR in 1970, the first year Siberia and other areas of the eastern USSR were opened to visitors. Khabarovsk is on the Amur River in Siberia, not far from the northeast corner of China. It was the first stop after Alaska, and, knowing that it had a botanical garden, Mrs. Feffer asked where the garden was located. The Intourist guide said there was no garden at all. However, on returning to Khabarovsk two weeks later, Mrs. Feffer found that a visit to the botanical garden had been scheduled for her! (The minds of tour guides seem to work the same way the world over.)

The Director of the garden, a woman, was very interested in Arizona and enthusiastic about getting seeds, so when she came home Mrs. Feffer arranged with the Desert Botanical Garden to send to Khabarovsk seeds of cactus — prickly pear especially, but also hedgehog, barrel and saguaro — as well as agaves, yuccas, ocotillo and palo verde. The news item published above is the first Mrs. Feffer or the Garden has heard that the seeds arrived at their destination, but we're happy that they're growing successfully so far from home.

GARDEN ACTIVITIES

SEPTEMBER

Sun. 29th	CENTRAL ARIZONA CACTUS & SUCCULENT SOCIETY— Field trip — Tucson	2:00 P.M.

OCTOBER

Tues. 1st	CACTOMANIACS Potluck Supper "Botanical Gardens" — W. H. Earle	6:30 P.M.
Sat. 5th	FIELD TRIP — Peck's Lake (See Editor's Notes this issue)	8:30 A.M.
Sun. 27th	CENTRAL ARIZONA CACTUS & SUCCULENT SOCIETY— Meeting	2:00 P.M.

SAGUARO LAND BULLETIN

DESERT BOTANICAL GARDEN of ARIZONA

Vol. XXVIII October, 1974 No. 8

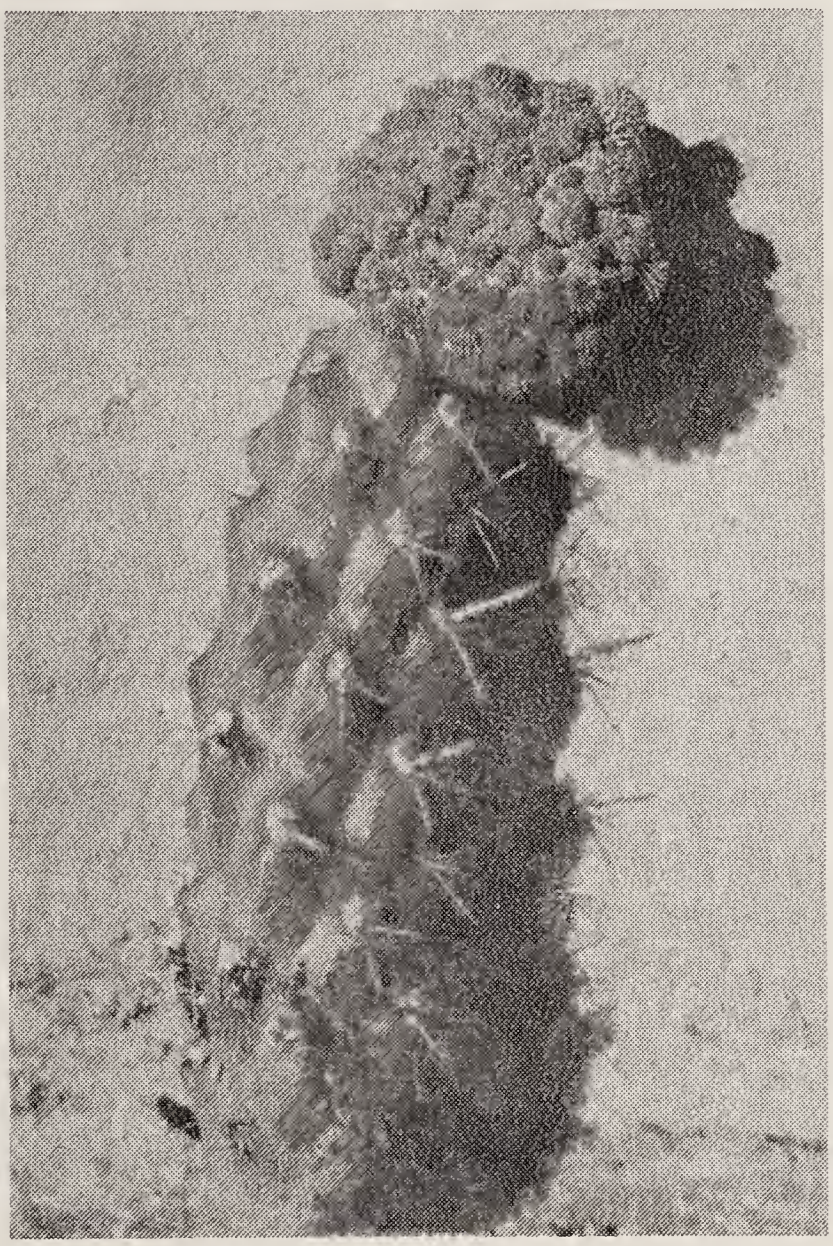


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Table of Contents

Editor's Notes 87
Australia's Brilliant Sturt Pea 88
Torrey Symposium on Endangered Plant Species 90
Aspects of the Desert 91
Coues' Cassia *(Cassia couvesii)* 92
The Things People Say! 93
Graptopetalum bartramii 94
Cardon *(Lemaireocereus dumortieri)* 95

Cover: *Opuntia fulgida* (See page 89)

Desert Botanical Garden of Arizona

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Student Horticulturist ..... John Moresco

Garden Open Daily 9 A.M.-5 P.M. Including Holidays

Editor's Notes

The 13th Congress of the IOS (International Organization for Succulent Plant Research) was held Sept. 10th-16th at Santa Barbara in the Miramar Hotel under the direction of Charles Glass and Robert Foster, co-directors of Lotusland Gardens.

If ever a convention was disorganized from beginning to end, this one was. Several scheduled speakers didn't appear, many of those who spoke changed their subjects from what was in the belatedly-printed program, the day and time a talk was given wasn't necessarily the day and time printed. Confusion certainly reigned, but the 31 members and 85 guests took everything in stride, thoroughly enjoyed themselves, and were most amiable about last-minute changes.

No wonder everyone was happy. Where else could you be taken on a tour of the length and breadth of Madagascar (a museum of plants) under a competent botanist, or go by helicopter with an armed guard of soldiers into the "Horn" area of northeast Africa, or into Yemen, again protected by soldiers, to see unbelievable flora? Or hike the length of the island of Socotra, botanizing under the eyes of belligerent natives?

Botanists, taxonomists and other scholars gave many interesting lectures and papers. Tours by bus were taken to the Huntington Garden in San Marino, Santa Barbara Botanical Garden, and to many outstanding succulent gardens and commercial nurseries.

Arizonans registering at the convention were: Your Editor, Garden Supt. Rodney Engard, Henry Triesler (president of the Central Arizona Cactus & Succulent Society), CAC&SS Secretary Frank Hennessey and Mrs. Hennessey, John Hales, and Ken Newall of the Boyce Thompson Arboretum. We all came back to Arizona happy at having had the opportunity to talk to world-famous persons in the succulent field, and with the names of all the exotic plants still running through our heads.

This was the first time the IOS had held a Congress in America. Many of the visitors from Austria, Germany and England visited our Garden a few days after the close of the Congress. It is planned to hold the 14th Congress in Barcelona in 1976.

You may be interested in a list of the illustrious speakers: Dr. Edward F. Anderson, Professor of Botany, Whitman College, Washington; Dr. Lyman Benson, Professor Emeritus of Botany, Pomona College, Calif.; Mr. and Mrs. John Bleck, Abbey Gardens, Calif.; Franz Bozsing, specialist in Gymnocalycium, Salzburg, Austria; Brian Fearn, Biology Dept., University of Sheffield, England; Dr. Heimo Friedrich, biologist, Natters, Austria; Cynthia Giddy, author, Durban, South Africa; Frank Horwood, Botanic Garden, University of Leeds, England; Rupert Hoesslinger, IOS Treasurer, Nuremberg, Germany; David Hunt, Royal Botanic Gardens, Kew, England; Clive F. Innes, Hollygate Nurseries, Ashington, England; Myron Kimnach, Curator, Huntington Botanical Garden, Calif.; John J. Lavranos, Botanist, University of Florence, Italy; Dr. George Lindsay,

(Continued on page 93)

AUSTRALIA'S BRILLIANT STURT PEA

"Unbelievable . . . incredible . . . fantastic" are a few of the comments made by visitors to the Garden when they see the Sturt Pea which bloomed here for the first time this year. Few flowers are as striking as this blazing scarlet blossom with a central boss of purplish black that shines like patent leather.

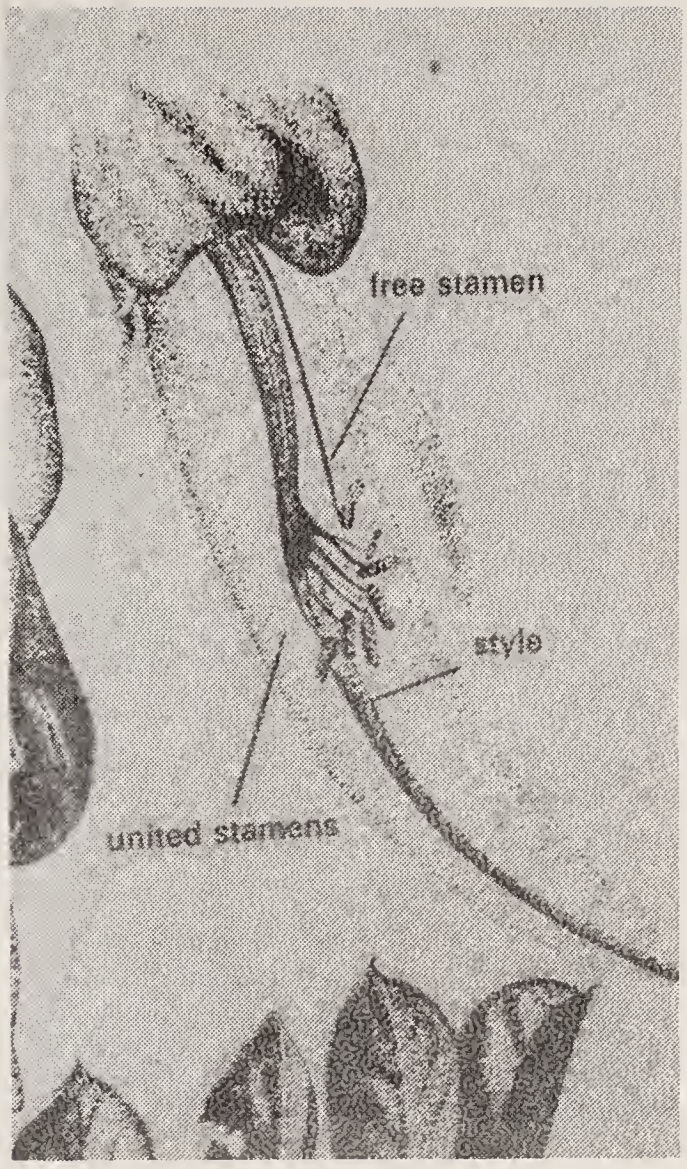
Sturt Pea, the emblem of the state of South Australia, was one of the first Australian plants collected and brought to the attention of the western world. Capt. William Dampier, R.N., circumnavigator and sometime pirate, collected it in northwest Australia in 1699 and wrote appreciatively about it. It was described botanically in the 1830s, but its common name commemorates the famous inland explorer Charles Sturt, who brought the plant to the notice of the eastern states after he discovered it in 1844 near Cooper's Creek during his harrowing exploration of the unmapped deserts of central Australia.

The botanical name, **Clianthus formosus** can be freely translated as "Glorious flower of beautiful form," and apt description, if perhaps a little too poetical.

This is a semi-erect, sprawling plant that grows to about three feet tall. Its stems and leaves are covered with long, white, silky hairs. The leaves are 10 to 14 cm long, and bear 11 to 21 nearly opposite leaflets that are 1 to 2 cm long. When the rare winter rains flood the bare desert lands of northern and central Australia, the Sturt Pea germinates and begins to show green, shortly producing scarlet flowers 3 to 4¼ inches long. The flowers are arranged four to six in a cylindrical cluster that hangs from the top of a sturdy stalk. The standard petal is 4 to 5 cm long, 2 cm wide, and bears a large black-purple boss or hemispherical swelling at its base. The keel is 4 to 5 cm long, rather parrot-bill shaped, and of a brilliant scarlet color. This is the most common color form, but there are other forms without black or with the scarlet shading to light red, pink,

Even in a black and white photograph Sturt Pea is a fascinating plant.

While the black central boss is very shiny, the red petal parts are silky.



The peculiar arrangement of stamens and the very long style of Sturt Pea.

and even to white or a mottled pink and white. These forms appear naturally and seldom occur in commercial seed.

The Desert Botanical Garden received 12 Sturt Pea seeds in 1965 from the King's Park Garden at Perth, West Australia. At that time ten seeds were planted but did not germinate. Last winter the two remaining seeds, now nine years old, were planted and immediately germinated. The seedlings were set out in February, began flowering in May, and continued through mid-September. The plants have produced seed which should be abundant enough in two years for Garden Members who wish to try something unusual in their Valley gardens.

Sturt Pea needs a sandy soil and should be well watered. It will take full sun. It has been grown successfully in San Francisco's Golden Gate Park and in southern California. Although usually treated as an annual, it is a perennial that will winter over if the root crown is covered during cold weather.

—WHE

COVER PHOTO

Recently Mr. W. B. Nelson of Mesa collected this peculiar branch of **Opuntia fulgida,** the common Chain-fruit Cholla. What appears to be some sort of graft at the top is actually aberrant growth of the apex of a normal plant. It is a proliferation of the growth of the apex of the lower stem into about 300 "growing points" (compressed stems), each covered with the succulent little leaves that are typical of new growth on Opuntias.

The cause of such a growth is not known. It could be a chemical spray, physical damage, insects or mutation.

The Torrey Symposium on Endangered Plant Species

By J. Harry Lehr

The Torrey Botanical Club sponsored a symposium that was held at Arizona State University in Tempe, Arizona on June 19, 1974 in conjunction with the annual AIBS meeting. The purpose of the symposium was to stimulate the botanist into a more active participation in the organized efforts which are being directed toward the conservation of endangered plant species.

The opening speaker, Dr. Donald Pinkava, Arizona State University, suggested a system of priorities as a necessity for a deliberate and scientifically supported program for saving endangered plant species and their habitats.

In a discussion of the problems of endangered species in Northern Arizona, Dr. W. B. McDougall, Museum of Northern Arizona, concluded "the natural processes of evolution are going to continue to eliminate some species and to produce new ones regardless what man may try to do." He concludes that "if we can prevent the needless destruction of biotic communities we need not worry much about individually endangered species".

Dr. Marshall C. Johnston, University of Texas, in his presentation "Methodological Problems in Rare Plant Studies" discussed the definition and determination of the "rare" status, the location of these plants in the field, and their propogation without making them still rarer. He envisioned a future where, with unchecked population growth, many species will survive only in artificial habitats.

Mr. W. Hubert Earle presented slides of endangered cacti species and discussed the legal efforts to protect them in the State of Arizona.

Dr. Wayne Savage, San Jose University, California presented a progress report on the inventory of rare, endangered, and possibly extinct vascular plants of California. He was followed by Dr. Dale W. Jenkins, Smithsonian Institution, who is compiling a national list of rare species. One of the products of the Flora North America project would have been the compilation of a national list but the "it is hoped" temporary abandonment of this project necessitates initiation from another source and Dr. Jenkins is active in filling this void.

Dr. Nickerson, Tufts University, presented a summary of the activities of the Massachusetts Association of Conservation Committees in the preservation of endangered species in that state.

Dr. James Reveal, University of Maryland concluded the meeting with a paper titled "Really, Who Gives a Damn?" Dr. Reveal expanded on the purpose of the symposium "more active participation by the botanical community in organized efforts to prevent the extinction of endangered plant species".

The Annual Meeting of the American Institute of Biological Sciences, which was held from June 16 to June 21 at ASU, drew well over two thousand people from the various specialized fields in biology. Fourteen different societies had organized programs, and a total of 920 papers was presented during the session.

Symposia and discussions of papers read involved the participants in long periods of mind-stretching activities on the university campus, but field trips had also been arranged for special interests and were very well attended. For example, shuttle buses were available all week for trips to our Desert Botanical Garden; the Fern Society ran a field trip to Flagstaff; Flagstaff and Mount Lemmon were sites of taxonomy field trips; there were separate ethnobotanical, paleobotanical and archaeobotanical trips, and others dealing with desert habitats and water conservation.

ASPECTS OF THE DESERT

Pictured here, an uncommonly straight stretch of the tortuous up-down-left-right-narrow-squeeze 40-mile-long Apache Trail, used in 1906-11 by wagon trains to haul every bit of material for building Roosevelt Dam. Today it is a highly scenic drive — but not for timid "flatlanders."

Arizona Wildflower

COUES' CASSIA
Cassia couvesii

Leguminosae
Pea Family

If you wanted to, you could have a spectacular garden with nothing but Cassias in it. Here in central Arizona tree-sized and shrub-sized Cassia species from Australia, Argentina, Mexico, Brazil and Africa find themselves at home in our gardens, and at least two of the Arizona species can contribute their bright yellow flowers to the display of gold that a Cassia garden will produce. One of them, **Cassia leptocarpa**, is available in nurseries, but the equally attractive native **Cassia couvesii**, though easy to grow, hasn't yet become a garden standard.

Cassia couvesii is an open, shrubby plant, one to two feet high, with leaves divided into two or three pairs of large (one inch by one-half inch) leaflets. Both the leaves and the branches are covered with short white hairs that give the plant a gray-green velvety look. In the wild, flowers occur from April to October, with the most profuse flowering in the spring, but in cultivation the flowering period is greatly extended — in mid-August C. **couvesii** plants here at the Garden showed generous amounts of blossoms.

Cultivation also increases the size of the yellow flowers, which are naturally about one inch across but grow fifty percent larger under the extra water and care that a "domestic environment" provides.

The bright yellow petals of Coues' Cassia are conspicuously veined.

As they mature, the seed pods turn brown and split open at the top.

The five-petalled flowers are borne in racemes that arise in the leaf axils, each racime bearing six flowers. By the time the upper flowers are opening there are pods forming where the first flowers appeared. The straight pods, 1½ inches long or more, at first look as velvety-gray as the rest of the plant. Later, when they dry, they turn brown. At this time, before they split open, they give the plant one of its common names, Rattlebox Senna, because the numerous nearly-ripe seeds rattle in the woody pods whenever the plant is stirred, with a sound that might just remind you of a rattlesnake's warning.

Cassia couvesii is found throughout Arizona at elevations of 1000 to 3000 ft. and, to a much lesser extent, in the neighboring states and Mexico. Asa Gray named it for Dr. Elliott Coues, the noted ornithologist who was stationed at Fort Whipple in 1864. Coues' name is familiar to bird watchers — the large gray Coues' Flycatcher is found in Arizona's southern mountains.

As we said, nurseries don't carry **Cassia couvesii**, but it's easy to grow your own from cuttings or by planting some of the numerous small pea-like seeds. It requires no special care, and so is a valuable native ornamental for desert gardens.

REFERENCES

Kearney & Peebles, Arizona Flora

—LD

THE THINGS PEOPLE SAY!

We love the visitors at the Garden. Yes, we do. We appreciate their contributions that help so much to keep the Garden going. and we get a boost from their genuine delight in the place.

But every so often we hear a visitor explain the desert to his friends with "facts" that are enough to make your jaw drop. Certainly we never knew these "facts" before, and you probably didn't, either. So, for your amazement and education, here are some of the statements we've recently overheard.

"You can tell in the desert when it's going to rain, because **five** hours before the rain the creosote bushes start to smell of creosote."

"A century plant stalk bends down (**one** odd-ball stalk did just that) so the seeds won't have so far to fall and they won't get bruised."

"S-a-g-u-a-r-o is pronounced Saggeroo." (Sounds like an exhausted kangaroo to us.)

"Jay birds (there aren't any in the desert) store water in the holes in the saguaros so that they can bathe in the summertime."

And one more, that scared a staff member into asking for double pay because work here is so dangerous: A nearby Gambel Quail was calling, and a visitor said to a friend, "Do you hear that wild hyena over the hill there?"

(The guy didn't get double pay — we told him that **he** ought to pay for working in such a fascinating place.)

EDITOR'S NOTES—

(Continued from page 87)

Director, Calif. Academy of Science; Hernando Sanchez Mejorada, Inst. of Biology, University of Mexico; Dr. Reid Moran, Research Botanist, San Diego Science Museum, Calif.; Len Newton, Professor of Botany, Kumasia University, Ghana; Prof. Dr. Werner Rauh, Director, Botanical Garden, Heidelberg, Germany; Gordon Rowley, Professor of Botany, University of Reading, England.

All in all, it was a most successful conference, as attested by all previous congress attenders. You can be sure that many who were at this 13th Congress plan to attend the 14th two years from now.

Four volunteers, Elizabeth Fritz, Marty Piggott, Muriel Freeman and Dorothy Carson are helping Peg Gill in the Library this year. Margaret Jenkins and Mildred Hunt have been doing volunteer work in the Visitors' Center, where we can still use additional help. Can you give us a half-day or a full day once a week? Please phone 947-2800 and talk to our Secretary, Anne Amacker.

GRAPTOPETALUM BARTRAMII Rose

By Reid Moran

The plant shown as **Graptopetalum bartramii** in the February 1974 Saguaroland Bulletin is in fact **G. rusbyi**, and the accompanying data apply some to one species and some to the other.

Graptopetalum rusbyi (Greene) Rose, well illustrated by the plants from Superior, Arizona, has clustered small rosettes, commonly 1 to 2 inches and rarely more than 3 inches wide, of papillose leaves. The few-branched floral stems, about 2 to 6 inches high, borne normally in late spring, have mostly 6-7-parted flowers about ½ to ¾ inches wide. This plant occurs in the mountains of central and eastern Arizona and southward into Mexico, at elevations of about 2500 to 5000 feet. It was named for one of its discoverers, H. H. Rusby, a botanical collector.

Graptopetalum bartramii Rose, shown in the accompanying photographs, has larger, commonly solitary rosettes, often 3 to 6 inches wide, of nearly smooth and somewhat glaucous leaves. The many-branched floral stems, up to 1 foot high, borne in fall and winter, have 5-parted flowers ¾ to 1⅛ inches wide. This plant occurs in the mountains of southern Arizona and northern Mexico at about 4000 to 5000 feet. It was named for its discoverer, Edwin B. Bartram, a botanist who was mainly interested in mosses.

Graptopetalum is a genus of 12 known species, extending from Arizona to Oaxaca in southern Mexico. The name, from the Greek words **graptos**, inscribed or painted, and **petalon**, a leaf or petal, alludes to the markings on the petals. Before this genus was recognized and named, **G. rusbyi** was placed in the catch-all genus **Cotyledon**, then tentatively in **Dudleya**; but **G. bartramii** was first described in **Graptopetalum**. Kearney and Peebles, in their Arizona Flora, considered **Graptopetalum** a subgenus of **Echeveria** and so treated both species in that genus — where they also placed the two Arizonan species of **Dudleya**. However, most botanists recently concerned with this family would keep both **Graptopetalum** and **Dudleya** as separate genera.

Fig. 1. Rosette of *Graptopetalum bartramii*, X 1.5. Plant from Penasco Canyon, Tumacacori Mountains, Arizona, 4000 feet elevation *(Moran 19288)*.

Fig. 2. Flowers of the same plant, 30 September 1973, X 1.5.

HELP!

Can you give a half-day or a full day each week or each month? There are all sorts of interesting jobs waiting for new Garden Volunteers. In the bookstore, in the office, with our seed-exchange program, with putting together a history of the Garden, to mention just a few of the jobs that need doing.

How about lending a hand? Phone the Garden at 947-2800.

Mexican Cactus

CARDON
Lemaireocereus dumortieri

Cactaceae

This tree-like cactus grows up to forty-five feet tall and is found south of Mexico City through the state of Puebla. It has a short trunk, twelve to fifteen inches thick, with arms rising vertically from it, each about six or seven inches in diameter, with six flat or shallow ribs. Stems or arms are a pale bluish-green, often glaucous, and at first glance appear similar to the upright stems of **L. marginatus**, the Mexican Organ Pipe.

The flesh of the stems of **L. dumortieri** is rather flaccid, and care must be taken when removing and transporting a short arm for purposes of propagation so that the flesh is not bruised, for rot will quickly set in and make the cutting useless.

L. dumortieri grows in colonies on limestone outcroppings and also as a solitary plant far removed from a colony.

During drought, local farmers will cut off the plant's arms and chop them into cubes for emergency goat and cattle feed. The material does not contain any protein, but it is at least filling and provides some moisture.

Stems have nearly continuous areoles bearing ten to twenty radials and one to several central spines that are one to two inches long. **L. dumortieri** grown in cultivation does not have the long central spines and the flesh seems more flaccid.

Short diurnal flowers 1¼ in. long and ½ in. wide are pink to red, remaining open several days in the native habitat but only one day at the Garden. Flowers occur very seldom in greenhouse culture.

Fruits are oblong and small, ¾ to 1¼ in.

L. dumortieri photographed 35 miles S of Zimapan, Puebla.

long, with red flesh and brown seeds that are dull and rough and one sixteenth of an inch long.

L. dumortieri was first described by Scheidweiler in Hort. Belge in 1837 as **Cereus dumortieri.** Scheidweiler erred in giving its location as "Buenos Ayres", as his description does not fit any South American plant. In 1845 Salm-Dyck (Cact. Hort. Dyck. 1844. 30) listed the plant as from the Belgian Gardens and published a description based on the plant in Belgium, but evidently he had overlooked Scheidweiler's earlier description. Since 1850 most writers have assigned Prince Salm-Dyck as the author of this species. Weber (Dict. Hort. Bois 279. 1895) seems to have been the first botanist to refer this species to Mexico.

Type Locality: State of Puebla, Mexico.
Distribution: Central Mexico

REFERENCES

Bravo, Las Cactaceas de Mexico
Britton & Rose, Cactaceae

—WHE

FIELD TRIP

The November 9th field trip will be to the Sierra Estrellas, west of Phoenix. Driving distance is 36 miles one way. The trip involves a moderate amount of walking, no climbing. This is the nearest place to see elephant trees. Leave the Garden's parking lot at 8:30 A.M. promptly, return between 4:30 and 5:30 P.M. Please phone the Garden for reservations, 947-2800.

GARDEN ACTIVITIES

OCTOBER

Tues.	**1st**	CACTOMANIACS—Potluck Supper "Botanical Gardens"—W. H. Earle	**6:30 P.M.**
Sat.	**5th**	FIELD TRIP—Peck's Lake	**8:30 A.M.**
Sun.	**27th**	CENTRAL ARIZ. C & SS—Meeting	**2:00 P.M.**

NOVEMBER

Tues.	**5th**	CACTOMANIACS—Meeting	**8:00 P.M.**
Wed.	**6th**	CLASS—Desert Plants	**2:30 P.M.**
Thurs.	**7th**	LECTURE—Arizona Cacti in Flower	**3:00 P.M.**
Sat.	**9th**	FIELD TRIP—Estrella Mountains	**8:30 A.M.**
Wed.	**13th**	CLASS—Succulent Plants	**2:30 P.M.**
Thurs.	**14th**	LECTURE—Arizona Wildflowers	**3:00 P.M.**
Wed.	**20th**	CLASS—Culture of Succulent Plants	**2:30 P.M.**
Thurs.	**21st**	LECTURE—Arizona Trees & Shrubs	**3:00 P.M.**
Sun.	**24th**	CENTRAL ARIZ. C & SS—Meeting	**2:00 P.M.**
Wed.	**27th**	CLASS—Desert Trees & Shrubs	**2:30 P.M.**
Thurs.	**28th**	LECTURE—Arizona Birds & Animals	**3:00 P.M.**

SAGUARO LAND BULLETIN

DESERT BOTANICAL GARDEN of ARIZONA

Vol. XXVIII November, 1974 No. 9

REG MANNING

SAGUAROLAND BULLETIN

Published and owned by the Arizona Cactus and Native Flora Society, sponsors of the Desert Botanical Garden of Arizona, P.O. Box 5415, Phoenix 85010. Saguaroland Bulletin attempts to promote the Garden and to provide information to the desert plants and their culture. Subscription $5.00 per year, the subscription including active membership in the Society and the Desert Botanical Garden. Issued 10 times a year.

W. HUBERT EARLE, Editor
LILLIAN DIVEN, Associate Editor

Volume XXVIII | November, 1974 | No. 9

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Table of Contents

Editor's Notes 99
Agave in a Spanish Treasure 100
Aspects of the Desert 103
Viejos, *Cephalocereus purpusii* 104
Clustered Pincushion, *Mammillaria thornberi* 105
Blanketflower, *Gaillardia pinnatifida* 107
Garden Activities 108

Cover: *M. THORNBERI* from
Quitobaquito, Organ Pipe Monument

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Editor's Notes

Recently we planted ten young Mexican Ebony trees along the south side of the Visitors' Parking Lot. Funds for the purchase of these plants came from a memorial fund established by the friends of the late Howard L. Cox.

Mr. Cox, who died last July, was a Garden Member who was about to put his extensive knowledge of landscaping at the Garden's disposal when he was overtaken by his final illness. A landscape architect and park planner for over forty years, he had volunteered to draw plans for new Garden landscaping, a generous and perceptive offer for which we were and are grateful, even though it was never carried out.

In Arizona since 1952, as architect and planner for the Arizona Parks Department and the Arizona Highway Department, Howard Cox had previously held similar positions with the National Park Service, the California Parks Board and the Park Department of Oakland, California. On his retirement in 1973 he offered to help us with our landscaping.

Knowing of his interest in the Garden, many of Mr. Cox's friends, relatives and former business associates contributed to our Memorial Fund in his name, and their contributions enabled us to buy ten of these incredibly hard to find trees.

Mexican Ebony is an outstanding desert tree with great landscaping potential. Although it grows slowly, it can attain a height of more than forty feet, and during its early years makes an excellent screening shrub. Unlike most desert trees, the Ebony has a dense crown of particularly bright green leaves, which makes it a welcome contrast to other desert planting as well as a possible choice for boulevard and street planting. The fruit are also attractive, being brown bean pods (this is a leguminous tree) four to ten inches long that have a slight crescent curve.

For many years the Garden has wanted to have a good-sized planting of this uncommon tree, and now, because of Howard Cox's friends, we have it.

Vandalism has been a persistent and increasing problem for Botanical Gardens in the past ten years, and there are no indications of its diminishing.

Our Garden was, luckily, free from vandalism and burglary until this year, but our two lath houses, which house cactus and succulents, have been entered three times. The most severe loss was the theft of a whole collection of 35 Lithops of untold value. The laths on the back of the structures have been torn open for entry. It is likely that the thieves in this case mistook the Lithops for peyote cactus.

A month ago the Visitors' Building was broken into, and the vandals overturned books and merchandise in their apparent search for money. To add insult to injury, the vandals sprayed the contents of a fire extinguisher over the piled-up books and merchandise, making a mess that took hours to clean up. All that was taken was $55 worth of merchandise, **plus** our large American flag (value $10) which was probably used to carry the merchandise in.

We gave much thought to the installation

(Continued on page 108)

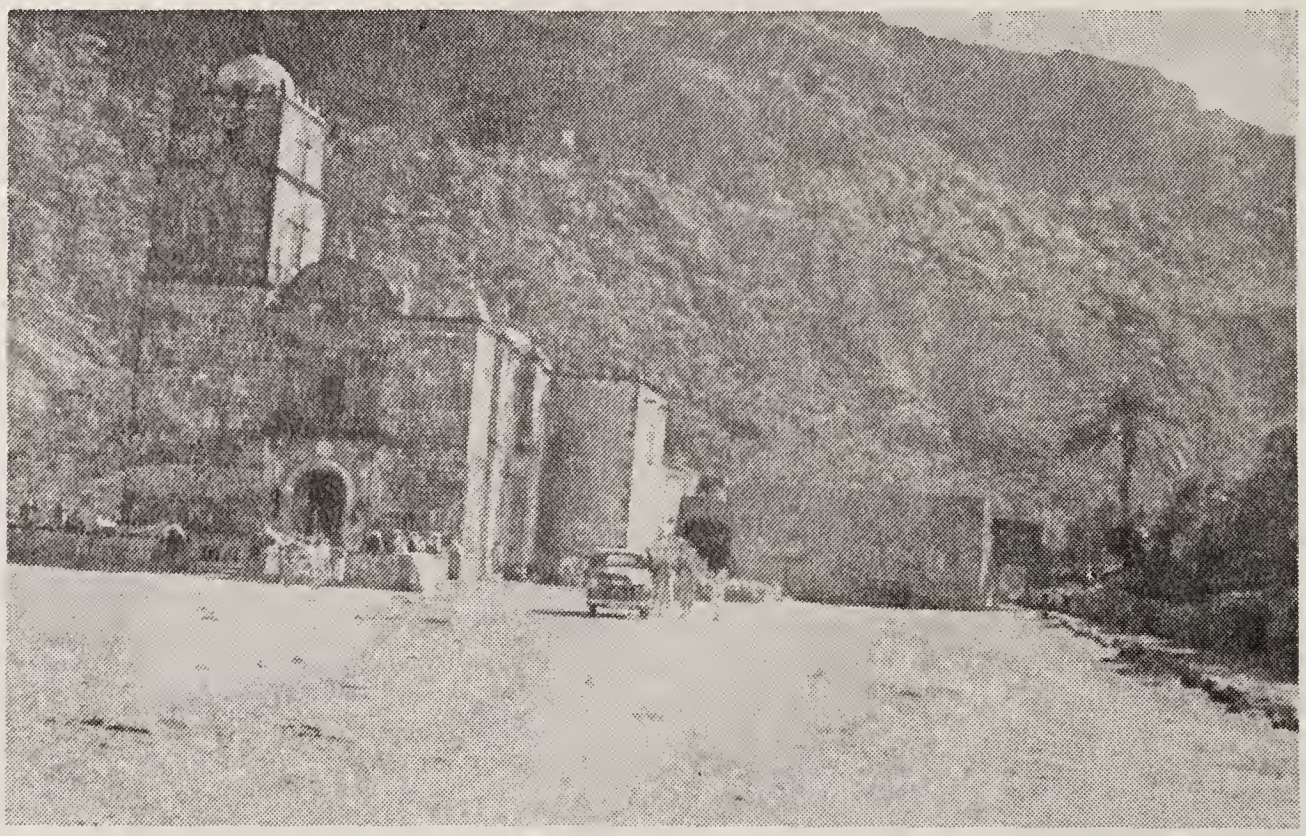
AGAVE IN A SPANISH TREASURE

by Howard Scott Gentry

Sometimes into the humdrum work of the researcher comes a fine surprise. This happened recently when I cracked open a new book, just published in 1973, but written two centuries ago! It is **Historia Natural y Cronica de la Antigua California** by Miguel del Barco, published by the Universidad Nacional Autonomo de Mexico, edited and annotated by Prof. Miguel Leon-Portilla of the same university. I am indebted to Annetta Carter, who is making a special study of the flora of the Sierra Giganta in Baja California, for bringing it to my attention.

Miguel del Barco was a Jesuit priest of Italian origin who spent 30 years, 1738-1768, in the Sierra Giganta region of Baja California. His headquarters was the Mision de San Xavier, an isolated and handsome large structure in the Sierra Giganta, see photo 1. This volcanic mountain range rises precipitously from the blue waters of the gulf and slopes gradually with lava mesas and rocky canyons to the Pacific Ocean. Barco's mission there, like that of all missionaries, was to convert the heathen Indians, and teach them the arts of civilization: to cultivate crops, construct homes, clothe themselves, and to work for the common weal, especially as concerned the Catholic Church.

The Cochimi Indians inhabited this region. They cultivated no crops and lived by gathering seeds, fruits, fodder and roots from the wild desert plants and by hunting animals from both sea and land. Hence, they knew more about that endemic biota than anyone before or since. Miguel del Barco, like the other missionaries, learned a great deal about his heathen people and their knowledge of their environment. He must have been one of those uncommon tireless people who "wrote it all down". His account of the animals, plants, and minerals occupies 166 pages in the work quoted above. Clavigero, a contemporary Italian historian who wrote **Historia de la Antigua o Baja California**, but who was never in Baja California, borrowed a great deal from Barco's unpublished reports.



1. Mision San Xavier in the Sierra Giganta, southern Baja California

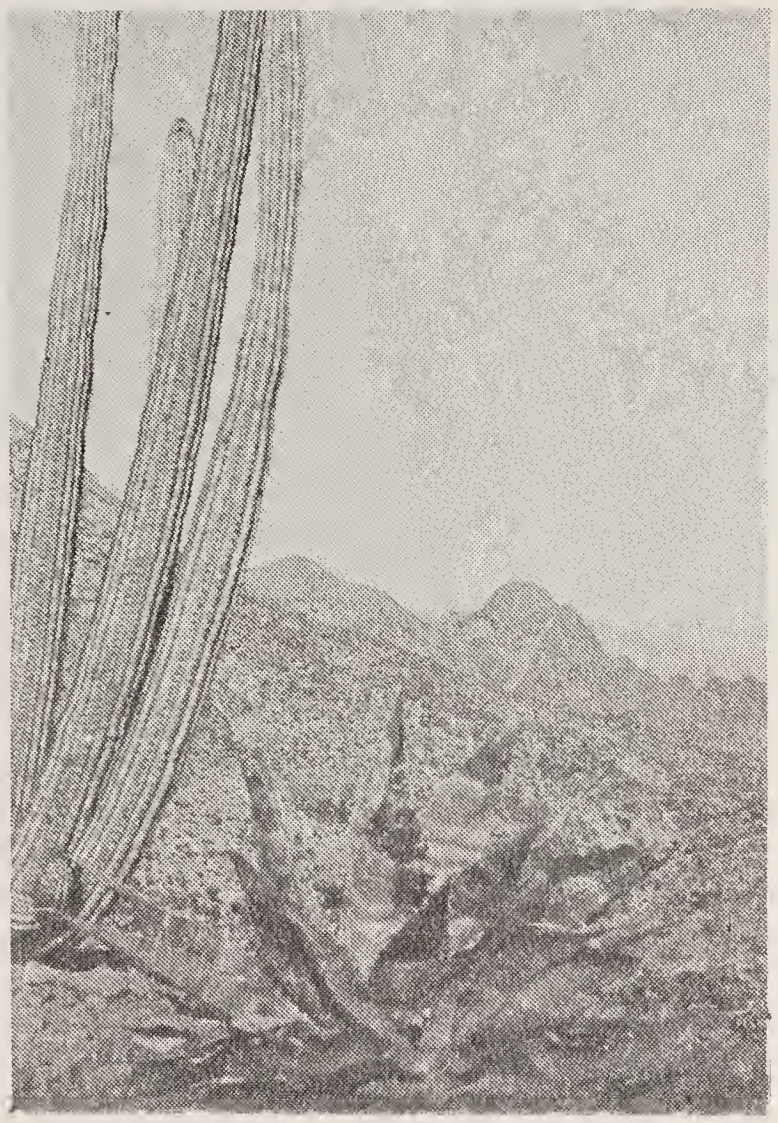
As sample of Barco's report, I have translated the following excerpts concerning the use of Agaves by the Cochimi Indians. Not only do we learn how important were the Agaves for the survival of these people, we learn also about their hard life, their gentle nature, and their ability to cope with a comfortless thirst and hunger-plagued existence.

"The Californians did not use, nor do they use the mezcal (the plant) for making beverage. They employ it only for eating, when it (the plant) is ready or mature. The mezcal is not eaten raw but only roasted, and the whole operation, which is carried out by women, is done in the following way.

"Three or four women or more leave their rancheria or settlement in the morning, each provided with a carrying net on the shoulder, over which it is maintained by some coarse cords, which pass to the forehead of the woman. In this net they carry the mezcales as well as whatever else needs to be carried all year. This net the Cochimi women call **uani** and the Spaniards call it **aparejo**. Besides the net each woman carries a large heavy knife. In place of a machete to cut the trunk of mezcal, they have a little slab of hard wood, 3 to 4 fingers wide and two or three palmos (20-25 inches) long, in the form of a shovel blade but without point, and in place of it, they bevel the end of it to cut the mezcal.

"In the afternoon each woman returns with eight or nine mezcales carried in the **uani**, which is a good load! Sometimes they travel one or two leagues (3-6 miles), adding on top some wood to roast them.

"Near the rancheria they make fire and add to it some stones that are not too large. When the wood is consumed and the stones as hot as red coals, they spread the coals and stones a little with poles and then one by one place the mezcales in accommodation onto the fire and to their judgement. Altogether it forms a mound and they cover it with nearby hot earth, which reconcentrates the heat and delays its dissipation. Thus, it is left for twenty-four



2. Pitaya and an edible Agave in the Sierra Giganta near the Mision San Xavier, Baja California.

hours and more frequently for two nights and one day; and they dig it out all well-cooked. The Mexicans and also the Spaniards of New Spain call this method of roasting **tatemar** and the thing that is roasted they call **tatema**. They use it to roast various things, principally heads of sheep and cows, etc. . . . . The meat remains tender, juicy, mild and savory.

"When the mezcales are taken out and left to cool, the woman has food for her family for three days, more or less, according to the number of persons. The bases of the leaves (the white growing tissue) which were left on the stems are also eaten, but we could better say they were chewed, as they have little more than a sweet juice and tough fibers which are not eaten. They spit out this bagasse like "tacos de escopete" shotgun wads). This bagasse is not always lost, because the old men and women (who, although given

3. The edible *Agave sobria* in the Sierra Giganta near the Mision San Xavier, Baja California.

food, are always hungry) recover these tacos that were ejected on the ground. When they are well dried, they ground them to powder between stones and eat them.

"When these plants are not cut they produce a flowering shoot, as we stated above, and in its flowers a good quantity of nectar is contained in the calyx of each flower. In order to collect this they cut each small branch of flowers separately, turn them upside down over an **adda**. Each flower is emptied of its contents and in a short while the **adda** or wooden bowl is filled. This nectar is sweet but rather nauseous, but when boiled and the spume skimmed off, it becomes much better."

In reading such accounts, one gains the impression that Agave was probably the most important plant food to the Baja California desertic Indians. In rainless years there was very little else than seasonal pitaya fruits, while Agave was always there. Barco wrote, "This is the most common food from October to April inclusive" (p. 124). The Cochimi and the other tribes are gone, wiped out by European diseases to which they had no or little resistance, and it is only by such accounts that we can know about the ancient people of old California. Barco's book is a real treasury of accurate first-hand information, not only of plants and animals, but also about man and his affairs in the 18th century. If you read Spanish and are interested in having this book, copies may be obtained at the following bookstores.

In Mexico: Fondo de Cultura Economica Libreria Satelite, Plaza Satelite Local No. 178, Naucalpan, Edo de Mexico — 100. pesos

In U.S.: Dawson's Book Shop, 535 North Larchmont Blvd., Los Angeles, California — $10.00 U.S.

VOLUNTEERS

We still need your help with the Bulletin, in the office, in the shop. Help with seed exchange, Garden history, lots more. Secretary Anne Amacker has a list of jobs, so phone her here at 947-2800. And thanks!

ASPECTS OF THE DESERT

Although Jerome, Arizona's famous ghost town which clings precariously to the north slope of Mingus Mt. at an elevation of 5435 ft., can't be considered an aspect of the desert, it has a fine prospect of the desert in the Verde Valley below it, as well as magnificent views of the Mogollon Rim to the north and and 12,000 ft. high San Francisco Peaks.

Mexican Cactus

VIEJOS
Cephalocereus purpusii
Cactaceae

It is hard to convince many collectors that this is a Cephalocereus, as most plants of the genus are tall and columnar with few if any branches, and the branches that do exist rise from the base of the plant. But **C. purpusii** is much branched above a short trunk, so much so that the branches look crowded and ungainly. Only by noticing the woolly cephalium on the upper parts of the stems will you convince yourself that this is truly a Cephalocereus.

The stems are two to three meters high, and the branches are green on the new growth, but quite dark on the older portions. Branches are three to four cm in diameter, with about twelve low ribs, 5 mm high, and separated by narrow intervals. The areoles are closely set, 1 cm apart on the lower part of the stem but much closer together toward the apex of the stem where the long, white, silky hairs are located. The older part of the stem is void of hairs. Spines are acicular, one to three cm long, a bright yellow ageing to gray.

Flowers are 7 cm long, the rounded exterior petals white and the interior petals pale rose with white margins. The ovary is 1½ cm in diameter and green. The fruit is spherical, 2½ to 3 cm in diameter, greenish, and the seeds are black and slightly rugose.

C. purpussi was collected by Rose, Standley and Russell at Mazatlan, Mexico in 1910. It is named for the veteran collector Dr. C. A. Purpus, who had possibly collected the species several years earlier.

On several exploration trips we have found this cactus growing in the hills overlooking Mazatlan harbor, eight miles east of Villa Union on the limestone hillsides among trees, all in the state of Sinaloa, and on the pedregal, or lava flows, between Guadalajara and Morelia in the state of Jalisco.

Viejos photographed growing in the pedregal near Kilo 1247 on the Durango-Mazatlan highway.

Type locality: Mazatlan.

Distribution: Along the coast of the state of Sinaloa and inland ten kilometers. Also in the state of Jalisco.

REFERENCES

Bravo, Las Cactaceas de Mexico
Britton & Rose, The Cactaceae

——WHE

Arizona Cactus

CLUSTERED PINCUSHION
Mammillaria thornberi
Cactaceae

This lovely little clustered Mammillaria has been hiding for years under the name of **M. fasciculata** and a description by Engelmann in Emory's Military Reconnaissance of 1848. There has been much confusion, even when it was "rediscovered" by Thornber and Orcutt about 1902 near Tucson.

Orcutt described it and first named it **M. thornberi,** but he later referred it to **M. fasciculata.**

Many thanks can be extended to Dr. Lyman Benson who untangled the whole mess by determining that no "**M. fasciculata**" can be found in the area of the original "discovery." The plant that Engelmann described was only a thin specimen of **Echinocereus fasciculatus.** The plant Thornber and Orcutt "rediscovered" was really a new discovery, and its original name, **Mammillaria thornberi,** must be the valid name. As for **M. fasciculata,** it never existed — it's a ghost or a botanical mirage.

This is a small cespitose plant having many heads and forming clumps 30 cm wide with the heads 5 to 8 cm wide and up to 30 cm tall. The heads, or stems, are narrowly cylindrical, with a gradual taper toward the root. The reddish-brown central spines and thin radials partially obscure the stem. The one central spine is 18 mm long, acicular, slender, and strongly hooked.

The 13 to 20 whitish radials that are tipped with brown or black tend to conceal the purplish-green tubercles which are arranged in five to eight spirals around the plant.

Flowers are 2 cm broad and 3 cm long, a lovely purplish pink, and appear during the months of August and September. The fruit is short and clavate, 8 mm long. It is scarlet and juicy and relished by birds and rodents. Seeds are black and glossy.

Distribution: Southern Arizona to Sonora, Mexico. We have also found small clumped plants south of Phoenix on the Gila River Indian Reservation.

Type Locality: South of Tucson, Arizona.

REFERENCES

Benson, The Cacti of Arizona
Britton & Rose, The Cactaceae
Craig, Mammillaria Handbook
Earle, Cacti of the Southwest

——WHE

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COMPLETION FALL OF 1976

At the top of the page you'll see the sign that stands a few feet from the north border of our parking lot. Though it won't open until Bicentennial Year, we've started trenching and preliminary planting. Architects are busy on trail plans. The "machinery" is working, slowly but picking up speed.

The other two pictures are of our handsome new grills. Don't they look as if they've always belonged here? Very nice.

Arizona Wildflower

BLANKETFLOWER
Gaillardia pinnatifida

Compositae
Sunflower Family

If the true botanists will forgive me, I'd like to try something. Somehow, odd facts or comparisons help fix a plant in my own mind quicker than anything else, and they may help you, too. So at the end of this article you'll find a few non-technical and probably unscientific words that are meant to help you remember this Gaillardia when you see it in the wild. I'm quite aware that a Gaillardia and a Black-eyed Susan come from different genera, and probably have more differences than similarities, but a clue like that may help you zero in on the correct name of a plant when you're on a hike and far from your field guides and reference books.

Gaillardia is a western U. S. genus of handsome, conspicuous flowers. **Gaillardia pulchella**, which is also found in Arizona, is the parent of the cultivated annual Gaillardias, and **G. aristata**, which reaches Colorado and New Mexico but not Arizona, is the parent of the cultivated perennials. Both annuals and perennials are popular in Arizona gardens.

Gaillardia pinnatifida has 1½-inch-wide flowers on long stalks. The whole plant is from six to thirty inches tall, though usually halfway between these two limits — about eighteen inches. Since it is a composite, the "flower" is a head composed of two kinds of flowers, the tiny disk flowers that make up the center, surrounded by the longer ray flowers. Here the disk flowers form a dome, the color and texture of purple velvet, while the ray flowers are three-lobed, yellow shading to reddish at the base, with strong purple veins on the underside. As the flower head matures, the rays drop and the disk flowers become a fuzzy ball of gray-purple.

The leaves of this plant are mostly at the base and are pinnatifid, or deeply cleft. Our herbarium sheets show quite a variety in the shape and size of leaves, but all are deeply cut and all are hairy and grayish. The dull green stalks are stiff and hairy.

This is a reasonably common plant of the mesas, plains and open pine forests of Arizona at elevations between 3500 and 7000 ft. It is often found on limestone. Flowering occurs between April and October.

Found also in Texas, Colorado and Utah, **G. pinnatifida** extends south into Mexico as far as Nuevo Leon, Coahuila and Durango.

REFERENCES

Kearney & Peebles, Arizona Flora
MacDougall, Grand Canyon Wild Flowers
Patraw, Flowers of the Southwest Mesas

LOOK FOR: A rather gaudy flower, purple velvet center, three-lobed yellow rays reddish toward the center, purple-veined below. Reminds you of a smaller, "technicolor" Black-eyed Susan. Most likely in pines, late spring thru summer.

——LD

EDITOR'S NOTES—

(Continued from page 99)

of alarm systems and investigated the different systems available. Aside from the initial cost of $5000 plus regular maintenance charges, the drawbacks of such systems made their use impractical at the Garden. Our location here is so remote that vandals could enter and ransack the Garden and escape before law officers could arrive here to apprehend them.

Finally, we decided on another approach to the problem. We have installed wrought iron grills on all doors and windows of the Visitors' Building, Auditorium, Library and Herbarium. Although a determined professional burglar can force his way into any building, statistics show that vandals can be effectively discouraged by solidly secured metal grills. Our grills, which are handsome as well as heavy, were installed at the low-bid price of $3600. Besides being a deterrent, the grillwork enhances the appearances of our buildings. Do stop at the Garden to see how attractive the grills are. Photos of the installations are on page 106.

THIS MONTH

Sign up for Classes. This year they start at 2:30 p.m. on Wednesdays.

November Cactomaniacs meeting will feature a slide show by Liscum Diven on plants and places in Madagascar and the Comoroes. Supt. Engard will give pointers on how and where to plant wildflower seeds. This is the time of year for it.

Lectures this year include many new slides. Don't miss them.

FIELD TRIP

The November 9th field trip will be to the Sierra Estrellas, 36 mliles west of Phoenix. A moderate amount of walking will be involved. A feature of this area is the elephant tree.

The December 7th field trip will be to Indian Springs in the Harcuvar Mountainas, about five miles from Salome. (Total distance from the Garden, 135 miles). Much to see near the springs, but some climbing will be necessary for participants wishing to see the *Nolina bigelovii.*

All field trips leave the Garden parking lot promptly at 8:30 a.m. and return between 4:30 and 5:30 p.m. Participants should bring lunches and wear suitable clothing. Call the Garden at 947-2800 for reservations.

GARDEN ACTIVITIES

NOVEMBER

Tues.	5th	CACTOMANIACS—Meeting	8:00 P.M.
Wed.	6th	CLASS—Desert Plants	2:30 P.M.
Thurs.	7th	LECTURE—Arizona Cacti in Flower	3:00 P.M.
Sat.	9th	FIELD TRIP—Estrella Mountains	8:30 A.M.
Wed.	13th	CLASS—Succulent Plants	2:30 P.M.
Thurs.	14th	LECTURE—Arizona Wildflowers	3:00 P.M.
Wed.	20th	CLASS—Culture of Succulent Plants	2:30 P.M.
Thurs.	21st	LECTURE—Arizona Trees & Shrubs	3:00 P.M.
Sun.	24th	CENTRAL ARIZ. C & SS—Meeting	2:00 P.M.
Wed.	27th	CLASS—Desert Trees & Shrubs	2:30 P.M.
Thurs.	28th	LECTURE—Arizona Birds & Animals	3:00 P.M.

DECEMBER

Tues.	3rd	CACTOMANIACS—Meeting	8:00 P.M.
Wed.	4th	CLASS—Culture of Desert Trees & Shrubs	2:30 P.M.
Thurs.	5th	LECTURE—Arizona Scenics	3:00 P.M.
Sat.	7th	FIELD TRIP—Indian Springs	8:30 A.M.
Wed.	11th	CLASS: Desert Trip—Carefree	8:30 A.M.
Thurs.	12th	LECTURE—Arizona Cacti in Flower	3:00 P.M.
Thurs.	19th	LECTURE—Arizona Wildflowers	3:00 P.M.
Thurs.	26th	LECTURE—Arizona Trees & Shrubs	3:00 P.M.
Sun.	29th	CENTRAL ARIZ. C & SS—Meeting	2:00 P.M.

SAGUARO LAND BULLETIN

DESERT BOTANICAL GARDEN of ARIZONA

Vol. XXVIII December, 1974 No. 10

Season's Greetings

REG MANNING

SAGUAROLAND BULLETIN

Published and owned by the Arizona Cactus and Native Flora Society, sponsors of the Desert Botanical Garden of Arizona, P.O. Box 5415, Phoenix 85010. Saguaroland Bulletin attempts to promote the Garden and to provide information to the desert plants and their culture. Subscription $5.00 per year, the subscription including active membership in the Society and the Desert Botanical Garden. Issued 10 times a year.

W. HUBERT EARLE, Editor
LILLIAN DIVEN, Associate Editor

Volume XXVIII | December, 1974 | No. 10

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Table of Contents

Dayflowers, *Commelina dianthifolia* and *Tradescantia pinetorum* 112
Tetetzo, *Cephalocereus tetetzo* 114
Aspects of the Desert 115
Our New Board Member 116
Mojave Claret-Cup Hedgehog, *Echinocereus triglochidiatus* var. *mojavensis* 117
We're a Christmas Shop 118
Janusia gracilis 119
Garden Activities 120

Cover: Arizona Cypress, see page 116.

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Editor's Notes

Holiday Greetings from
the Garden Staff
and the Garden Volunteers

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Arizona Wildflower

DAYFLOWERS
Commelina dianthifolia
and
Tradescantia pinetorum
Commelinaceae
Spiderwort Family

These two closely-related flowers of the pine woods will be easier to tell apart if we deal with them together instead of in two separate articles.

The Spiderwort Family is a large one of twenty-five genera and about 300 species of somewhat succulent, slimy-juiced plants that have long, tapering leaves that clasp the jointed stems. Familiar garden and house plants of this family are Zebrina, a number of Tradescantias, and some Commelinas, though neither of these Arizona wildflowers is used horticulturally.

The name Spiderwort comes, as far as we can tell, from the fact that a mucilaginous material in the stems can be pulled out as fine as a spider web. It will harden to a thread with a few minutes exposure to the air. Wort is an old English word that means herb or plant.

Both these plants are called Dayflower because the individual flowers last for only one day, though the blooming period is longer because the many buds in each flowering head open in succession. When the flowers open they are a clear azure blue, but as the day goes on the color darkens, and at the end of the afternoon becomes a rich deep blue, almost verging to purple-blue.

The genus Commelina, from which the family gets its botanical name, has flowers with two large petals and one insignificant one. Linnaeus named the genus after the Commelijn brothers, two

Tradescantia pinetorum flowers have bearded filaments, three equal petals.

"Bird's head" spathe identifies the *Commelina dianthifolia.*

Commelina dianthifolia near Heber, Ariz. on August 4th. X½.

Tradescantia pinetorum at same location, 6500 ft. elevation. X½.

well-known botanists and one nonentity. The great Linnaeus was more than a little uncharitable here, but at least he made it easy for amateurs to tell a Commelina when they see one.

The genus Tradescantia, on the other hand, is a straightforward tribute to a fine man, John Tradescant, gardener to Queen Henrietta Marie (wife of James I) and the founder of a museum of natural history at Lambeth.

To get back to the wildflowers, first let's enumerate what the two have in common besides their color and habitat. Both have slender stems and narrow, arching folded leaves that are three to four inches long and under ¼ inch wide. The leaf base sheathes or clasps the stem. Both have flowers that are ¾ inch wide. Both bloom in August and September, and both grow at elevations of 4500 to 9300 feet, although the Commelina is also found as low as 3500 feet. Both are found in Apache and Coconino Counties, but the Commelina also grows as far south as Cochise, Santa Cruz and Pima Counties and into Mexico.

The greatest differences between the two are found in the flowers. The most striking characteristic of **Commelina dianthifolia** is the spathe that encloses the flower cluster. A spathe is a specialized bract or modified leaf, usually very much larger than other leaves and differently shaped. The spathe of **C. dianthifolia** is shaped like a flattened funnel or a tightly folded heart with an exaggeratedly long tip. It is one to 2½ inches long, quite large in proportion to the plant as a whole. Another plant with a similar spathe is Strelitzia, the tropical Bird of Paradise, much larger, of course, than our native wildflower, but both look like the profile of a long-billed bird.

The folded spathe encloses a cluster of buds that open on successive days. As mentioned above, the flowers are irregular. There are three pollen-bearing stamens and three sterile ones with

(Continued on page 116)

Mexican Cactus

TETETZO or HIGO DE TETECHE
Cephalocereus tetetzo

Cactaceae

The Valley of Tehuacan, Mexico, has one of the highest concentrations of columnar cacti in the world. As you look in awe at the miles of tall cacti crowding the valley and hillsides you gradually begin to distinguish a few grayish-green plants that are 10 to 15 meters high with strict arms almost as high These are **Cephalocereus tetezo.**

The plant has many low acute ribs on the body and the arms. Areoles are oval and bear brown wool. Radial spines, 8 to 15, are stiff, thick, whitish with black tips, one to 2½ cm long. The white central spines, 1 to 3, are much stronger, 4 to 5 cm long, deflexed. New spines as well as the wool on the apex of the plant are pinkish-brown.

The greenish-white flowers grow in profusion near the upper portions of the plant and are funnelform and six cm long. Fruit is green, pyriform, glabrous, 2 to 3 cm long, with white pulp surrounding many black seeds that are 2 mm long.

The somewhat-sweet edible fruit is sold in the markets and the black seeds are used locally as a cereal.

Very young plants are quite similar in appearance to **Pachycereus pecten-aboriginum** which grows far to the north in Sonora.

Cephalocereus tetezo was described by Weber as **Pilocereus tetezo** in 1864. Coulter referred it to the genus Cereus in 1896. Ochoterena named it **Pachycereus tetezo** in 1922. Vaupel's name for it in 1928 was **Cephalocereus tetazo** and Bravo gave it its present status in 1930. Backeberg's attempt to turn it into a Neobuxbaumia has not been recognized by botanists.

Type Locality: Zapotitlan, Puebla.

Distribution: State of Puebla, growing with **Cephalocereus hoppenstedtii.**

REFERENCES

Backeberg, Die Cactaceae
Borg, Cacti
Bravo, Las Cactaceas de Mexico
Britton & Rose, The Cactaceae

——WHE

Tetetzo near Tehuacan. Note fruit at top of each arm.

ASPECTS OF THE DESERT

Lake Powell, part of the Colorado River in northwest Arizona and Utah, has a prismatic beauty found nowhere else. As the day ends, the intense primary colors of the water and the sandstone deepen and change, until twilight turns everything to shades of lavender, mauve and amethyst.

MARGARET CALDWELL, OUR NEW BOARD MEMBER

At the November Executive Board Meeting Margaret Caldwell was elected to the Board to fill the vacancy left by the death of Charles Mieg.

Margaret, wife of Dr. Hayes Caldwell, has lived in Phoenix since 1947. Always interested in the southwest desert, she has become one of the best desert gardeners, has attended Garden classes, and participated in field trips, Garden meetings and other activities. Her enthusiastic support of the Garden is familiar to many of our members.

The Executive Board welcomes Margaret to its ranks and feels that she will be of great value in planning and assisting the future growth of the Garden.

OUR CHRISTMAS TREES

To decorate the Garden for the holidays we've chosen small live Arizona Cypress trees. Besides being natives to our state, they are popular trees in temperate climates all over the world, used in parks and gardens and along boulevards. They can grow as high as ninety feet, and as they mature they develop a lovely open growth habit that, together with the lacy foliage, makes them much more graceful than other cypresses. The small trees we chose for Christmas are four to six feet tall and still columnar. As you can see from the picture on the cover, they make a very nice holiday display.

Arizona Cypress is found throughout the state at elevations of from 3000 to 7000 ft. Our 1200 ft. elevation in the Salt River Valley might seem too low for such a tree to thrive in, but there are fifty-foot specimens on the campus of Arizona State University in Tempe. As a matter of fact, the trees at lower elevations spread more and are more attractive than those higher up.

Very small Arizona Cypresses make excellent bonsai, so you might start looking for one now to make an Arizona bonsai Christmas tree for yourself next year.

WILDFLOWER

(Continued from Page 113)

crosses at the tips. The stems of this plant are simple to much-branched.

Tradescantia pinetorum, on the other hand, has no large spathe, only several small leaflike bracts beneath the flower cluster. The flowers have three petals of equal size, and the six stamens are all alike. The filaments in these flowers are bearded; those in the Commelina are not. Perhaps because they are not restricted by a spathe, the **T. pinetorum** flowers open wider than those of **C. dianthifolia.** The stems are usually simple, seldom branched.

Although there are more brilliant late-summer wildflowers in the mountains, the Dayflowers with their changing shades of blue have great appeal for wildflower-watchers.

REFERENCES

Kearney & Peebles, Arizona Flora
Rickett, Wild Flowers of the United States, Vol. IV

LOOK FOR:

In **Commelina dianthifolia:** the folded, bird's-head spathe; and remember the Commelijn brothers for the flower shape.

In **Tradescantia pinetorum:** the three equal petals, no spathe.

In both: blue-to-dark blue flowers, arching grasslike leaves; in pines, late summer.

——LD

Arizona Cactus

MOJAVE CLARET-CUP HEDGEHOG
Echinocereus triglochidiatus var. mojavensis
Cactaceae

This clumped hedgehog is found in scattered spots east and south of the Colorado River in the northwestern corner of Arizona. It is hard to distinguish from **E. triglochidiatus** var. **melanacanthus** which is found in the same area. **E. triglochidiatus** var. **mojavensis** has larger red flowers, and its white spines are twisted and much longer than those of var. **melanacanthus.**

E. triglochidiatus var. **mojavensis** forms large mounds of up to 500 heads. The mounds are as wide as one meter, and the much-branching stems are ten to fifteen centimeters in diameter and seven to fifteen centimeters long. Another common name for this plant is Mound Cactus.

The spines of this cactus do not obscure the green body of the plant. Central spines are whitish, one or two to an areole and two to 4 cm in length; radial spines 5-8 to an areole, one to two cm long, are spreading.

The flower is red, 3 to 6 cm long and wide. The color is sometimes referred to as grenadine.

Fruit is red when ripe, covered with a mass of spines that brush off when the fruit ripens. The ovoid to cylindrical fruit is quite delicious when ripe. It contains black papillate seeds 3 to 8 mm long.

The mound will often be covered with red flowers in April and May, but many of the fruits abort, so that only a few will mature.

This is a good plant for collections, but it grows slowly. It should be protected from the sun in lower elevations, as its home is in the transitional desert of 3500-4500 ft. elevation.

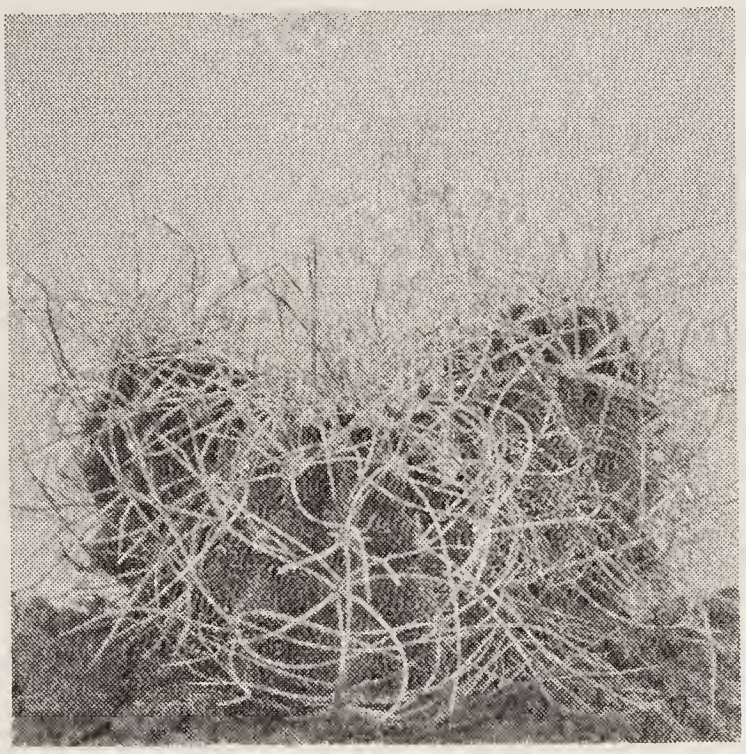
Type locality: Along the Colorado River.

Distribution: Arizona and California, on both sides of the Colorado, and north to Nevada and Utah.

REFERENCES

Britton & Rose, Cactaceae
Earle, Cacti of the Southwest

——WHE



Long, twisted white spines distinguish var *mojavensis* from the other varieties.

NOT ALREADY!

Does the Cactus Show seem far off? It's not. And we've already had queries from exhibitors.

So, though we'll need lots of volunteers just before and during the Show, we need some NOW. There's a good bit of pre-preparation to do.

Will you volunteer a day or half-day each week for "show business"? Please call our Anne Amacker at 947-2800.

WE'RE A CHRISTMAS SHOP

A stop at our bookstore and gift shop in the Visitors' Building may well take care of the bulk of your Christmas gift list this year. Come in soon to browse and buy. (We can't mail any of the items for you or to you. The shop isn't equipped to do it, and you know what the mails are like these days, anyway.)

Among the handsomest new gifts are the laminated prints of really fine watercolor drawings of flowering cactus. The prints are laminated to a masonite backing already equipped with a hanger. They are "framed" with a gold-rimmed black border and the edges are bevelled. The surface has a silky finish, a tremendous improvement over the varnished look that spoils most laminated pictures. Some prints are 10 x 13 in., others are 11 x 11. Prices, $10.00 each.

The Gatti windbells are always sweet-sounding. Sometimes the designs are a bit "cute," but there are also designs that combine subtle colors and Indian motifs very attractively. Prices are $4, $5, and $6. We refuse to say that windbells make a striking present.

Ornamental candles can really be good-looking. We have some dark green saguaro and prickly pear candles that are nicely designed and not over-perfumed. They range from a tall saguaro at $4.50 down to small $1.25 and $0.50 sizes.

If you haven't already bought our hand-woven place mats and hot pads for yourself or for gifts, why wait? They wear like iron, have stylized saguaro designs, and come in various pastel-and-white shades. They are also completely washable and they don't curl up at the edges. The large place mats are $4.50 each, and the hot pads, or use-at-the-table potholders, are $2.00 each.

We have some of the best cactus-planted terrariums around. They are brandy snifters and fish bowls of various sizes planted with really fresh little plants. Sizes range from generous to tremendous, and prices range from $6 to $16.

Maybe somebody doesn't find geodes fascinating, but we've never met such a person. The shop has a variety of these crystal-lined hollow stones at prices from $5 to $8. (Have you priced geodes elsewhere?) Each is an open half-geode with the edges polished. No two are alike, of course, and perhaps no one is alike, since the crystal deposits in each half aren't always identical. Suitable recipients would be brothers, sisters, nephews, nieces, aunts, uncles and self.

An easily-mailed (by you) gift for a youngster is the charming book about a horned toad called "Horny." Illustrated in color, the price is $2.25.

Another easy-to-mail item would be one of the two Cahill samplers. If you know the Cahills' prickly pear and pomegranate jellies, their wild orange marmalade and date conserve, there's no need for us to rave about the quality of these products. The samplers, at $3.25 and $5.15, contain jars of each delicacy, plus, in the larger sampler, small boxes of cactus and "desert delight" candies.

Now for the Stocking Stuffers:

Foreign stamps with cactus pictures, three different packages for $0.50 each.

"Big Bug" for $1.00. It's made from the big curly pod of the Devil's Claw plant and supplied with scary eyes and legs. Mad!

Good-sized Fool's Gold Nuggets, chunks of iron pyrites, for $1.00 each.

The pert and tiny Monsieur Mouse who's made of seeds and sits fearlessly on a piece of bark. $1.00 for this charmer.

A box of note cards with delightful drawings of desert creatures including the horned toad, kangaroo rat and desert tortoise. Twelve in a box for $1.75.

"Tote Notes" in a soft, tough folder that can travel in your handbag. Eight notes in each set — two copies of each of four full-color illustrations. One set features the superb Arizona photography of Herb and Dorothy McLaughlin. The best we've seen in many a year. $1.75 per pack.

We've a lot more to show you. Come and see.

SAGUAROLAND BULLETIN

Janusia gracilis A. Gray

Malpighiaceae
Malpighia Family

This small densely twining vine is very common in the central Arizona desert regions. Its distribution is Upper and Lower Sonoran Zones from the Grand Canyon to Greenlee County in Arizona and south into Mexico in Chihuahua, Coahuila, Sonora to central Baja California. Its elevational range is from 1000 to 5000 ft.

This plant may attain a height of 3 m if given support to that height. Most plants seen, however, are less than a meter high. The linear-lanceolate, short petioled leaves are simple with entire margins which are slightly revolute. The blades may have from 1 to 5 marginal glands near the base. Leaves are 3 to 7 mm wide and from 1.5 to 4 cm long and occur opposite on the grey to reddish stems. The hairs on the herbage are attached by their middles to the plants (dolariform).

There are two kinds of flowers occurring on the same plant: a small two-ovary self-pollinating kind which does not open and a 3-ovary typical cross-pollinating flower. The first flowers are called cleistogamous and the second type are called petaliferous flowers. The following pargraph applies only to this last, the petaliferous type. This condition of dimorphism in the flowers may be the reason for the selection of **Janusia** for a generic name, after Janus the two-faced Roman god.

The flowers occur singly or in clusters in the axils of leaves from March to October. The pedicels are slender and 2 to 5 mm long in flower. They elongate to 1 to 1.5 cm in fruiting stage. The five sepals are ovate-oblong, nearly 2.5 mm long with tooth-like glands to 1 mm long. The undulate petals are yellow to yellow-suffused-with-red. Occasional specimens are seen in which the flowers have turned red with age. The largest of the five petals may be 4 to 5 mm long. The blades of these petals may be rhombic to ovate, the margins being entire to denticulate. Style and stigma number one each, the style being triangular in cross-section.

The fruits are the same in either type of flower. The two-or-three-winged (depending on which type of flower was involved) maple-like fruits are called

Distinctive yellow flowers of *Janusia* have 5 petals narrowly contracted at the base. The winged fruits are another aid to field identification.

samaras. The body of each of these samaras is coarsely veined and bears a wing which aids in the distribution of the seed. The fruits contain one seed each and are 9 to 12 mm long including the wing which upon drying is brown and papery.

This plant belongs to a largely tropical to subtropical family. There are 12 species in the genus **Janusia**. They are distributed from the southwestern United States to Argentina. Those who know **Mascagnia macroptera**, a close relative which we grow here in the Garden, will find the general appearance of the flower of Janusia and its habit very familiar. We hope in the near future to have this interesting and attractive native under cultivation here in the Garden.

Type Locality: Near El Paso, Texas. Published 1852

Field Marks: The fruits which look like the blades of a wind generator are rather distinctive. That, with the twining habit, watery sap, conspicuous yellow flowers and linear opposite leaves make it readily identifiable.

REFERENCES:

Correll and Johnston, **Manual of the Vascular Plants of Texas**

Kearney and Peebles, **Arizona Flora**

Shreve and Wiggins, **Vegetation and Flora of the Sonoran Desert**

Standley, **Trees and Shrubs of Mexico**

Vines, **Trees, Shrubs and Woody Vines of the Southwest**

—**RGE**

FIELD TRIPS

Saturday, Dec. 7th, Indian Springs, Harcuvar Mtns.: About 5 mi. from Salome, 135 mi. from the Garden. Much to see near springs, also some climbing for those who wish to see the fine **Nolina bigelovii** close by.

Saturday, Jan 4th, San Tan Mtns.: Near Sacaton, 60 mi. from Garden. Easy-to-medium walking. See Indian petroglyphs.

All field trips leave the Garden parking lot at 8:30 a.m. and return between 4:30 and 5:30 p.m. Participants should bring lunches and wear suitable clothing. Call the Garden at 947-2800 for reservations.

GARDEN ACTIVITIES

DECEMBER

Tues.	3rd	CACTOMANIACS—Meeting	8:00 P.M.
Wed.	4th	CLASS—Culture of Desert Trees & Shrubs	2:30 P.M.
Thurs.	5th	LECTURE—Arizona Scenics	3:00 P.M.
Sat.	7th	FIELD TRIP—Indian Springs	8:30 A.M.
Wed.	11th	CLASS: Desert Trip—Carefree	8:30 A.M.
Thurs.	12th	LECTURE—Arizona Cacti in Flower	3:00 P.M.
Thurs.	19th	LECTURE—Arizona Wildflowers	3:00 P.M.
Thurs.	26th	LECTURE—Arizona Trees & Shrubs	3:00 P.M.
Sun.	29th	CENTRAL ARIZ. C & SS—Meeting	2:00 P.M.

JANUARY

Thurs.	2nd	LECTURE—Arizona Birds & Animals	3:00 P.M.
Sat.	4th	FIELD TRIP—San Tan Mountains	8:30 A.M.
Tues.	7th	CACTOMANIACS—Dr. Donald Pinkava "How Plants Got Their Names"	8:00 P.M.
Wed.	8th	CLASS—Desert Plants	2:30 P.M.
Thurs.	9th	LECTURE—Arizona Scenics	3:00 P.M.
Wed.	15th	CLASS—Succulent Plants	2:30 P.M.
Thurs.	16th	LECTURE—Arizona Cacti	3:00 P.M.
Wed.	22nd	CLASS—Culture of Succulent Plants	2:30 P.M.
Thurs.	23rd	LECTURE—Arizona Wildflowers	3:00 P.M.
Sun.	26th	CENTRAL ARIZ. C & SS—Meeting	2:00 P.M.
Wed.	29th	CLASS—Desert Trees & Shrubs	2:30 P.M.
Thurs.	30th	LECTURE—Arizona Trees & Shrubs	3:00 P.M.